Main Article

PREVALENCE OF HEAD AND NECK CANCERS IN THE NORTH EAST - AN INSTITUTIONAL STUDY

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ABSTRACT: *In India, head and neck cancers (HNCA) account for 30-40% cancers at all sites. In North-eastern India, where this study was conducted, tobacco related oral cancer is very common which may be due to widespread habit of chewing tobacco. The lack of any study in this regard and alarmingly high prevalence of cancers of head and neck in this part of India has prompted us to take up this study. A retrospective study on prevalence of cancer in various head and neck regions like oropharynx, oral cavity, pharynx, larynx, oesophagus and nasal cavity was conducted in Department of Otolaryngology, Silchar Medical College and Hospital from 1993 to 2004.*

The prevalence is found to be significantly high at 54.48%, affecting males more than females in the age group of 40-69 years. HNCA of oropharynx and oral cavity constituted a major burden of total body cancer.

This study hopes to quantify and analyze the spectrum of HNCA and should help as a starting point for a much needed population based study in this region. A comprehensive effort is needed to identify the cause of such high prevalence, generate awareness and treatment options suited to meet this challenge.

Key Words: *Total body malignancy, Head and neck cancer, Prevalence*

INTRODUCTION

Oral cancer is one of the most common cancers in the world, commonest in India, Bangladesh, Srilanka and Pakistan. In India, head and neck cancers (HNCA) account for 30-40% cancers at all sites, out of which 9.4% being oral cancers. It is the sixth common cause of death in males and seventh in females. In North-east India, incidence of tobacco related oral cancers is about 33%. In the present study, prevalence of HNCA was found to be higher than in any other studies. Carcinoma oropharynx formed the largest group. The morbidity and mortality associated with this disease is a cause of major concern in this region. Many factors that are implicated for its causation are consumption of tobacco in its various forms, alcohol, smoking habits, lack of awareness, and lack of proper nutrition.

MATERIALS AND METHODS

A retrospective study on prevalence of cancer in various head and neck regions like oropharynx, oral cavity, pharynx, larynx, oesophagus and nasal cavity was conducted in Department of Otolaryngology, Silchar Medical College and Hospital from 1993 to 2004. Only histopathologically confirmed cases were included in the study.

RESULTS AND DISCUSSION

During this 11 year period, a total of 2052 cases of total body malignancies (TBM) were seen. Out of this, 1118 cases were of malignancies of the head and neck region. According to various studies, the prevalence of HNCA with respect to total body malignancies varies from 9.8% to 42.7%.[11,12,14,15,19,20] In our study, the prevalence was 54.48%. Such high prevalence in this region is indicative of several factors that predispose to HNCA. The use of tobacco, lime, betel and smoking is a very common oral habit prevalent in this region which may be one of the prominent causes. Although there is no previous study available, the present data points to an alarmingly high prevalence of HNCA in this region.

The commonest HNCA obtained was oropharyngeal carcinoma comprising of 320 cases (28.62%) followed by oesophageal and oral cavity cancers comprising of 217 cases (19.41%) and 182 cases (16.28%) respectively [Figure 1]. Oropharyngeal carcinoma comprised of 15.56% of TBM followed by oesophageal cancers (10.6%). Carcinoma of ear was the least common comprising of 24% of TBM and .43% of HNCA. With respect to oral cavity and oropharynx the commonest site involved was tongue (32.67%). Carcinoma

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Presented at 56th Annual conference of Association of Otolaryngologists of India, Kolkata-2004

cheek and tonsil formed more than 20% of oral cavity malignancies and about 5% of TBM [Figure 2].

Age and gender distribution

The commonest age group is sixth decade comprising of 348 cases (31.13%) [Table 1]. 22.8% cases were from the age group 40-49 years and 18% in 60 -69 years. Only less than 1% cases were below 20 years of age (n=7). Similar observations were reported in various literature.[15,19,20]

Esophageal cancer is commonest in fifth decade of life (17.82%) while oropharyngeal, oral cavity, hypopharyngeal and laryngeal cancers are seen mostly in sixth decade and seventh decades. There was no such predilection of age for malignancies of lymph nodes as the cases were evenly distributed.

In the gender distribution, male cases were far more common than female comprising of 833 males to 285 females, (2.9:1) [Figure 3]. Oropharyngeal cancer is commonest in males (n=253) while in females oesophageal cancer was the commonest (n=76). This male: female ratio is higher than in other studies ranging (1.5:1 to 2.1:1).[14,15,19,20] Males formed more than 75% of oropharyngeal and oral cavity cases, the tongue (n=133) being the most commonly involved site followed by tonsil and cheek which comprised of 35.28%. The male predominance is due to the fact that males are more exposed to habit of smoking and tobacco chewing, and of their increased awareness and accessibility to health-care service.

On the other hand, in females, cheek followed by tongue and palate were the commonest sites involved. As the male female ratio in the general population census is 1.06:1, the predominance of HNCA in males was found to be statistically highly significant (*P*<.001).

Histopathological pattern

Squamous cell carcinoma (SCC) was the commonest histological type in HNCA comprising of 93.29% cases

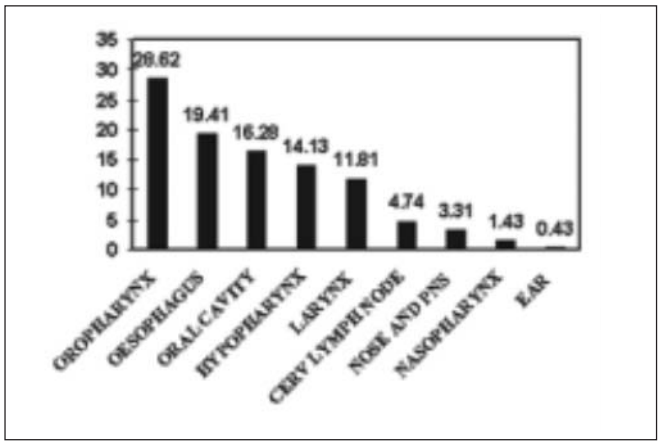

Figure 1: Percentage of HNCA in various head and neck regions

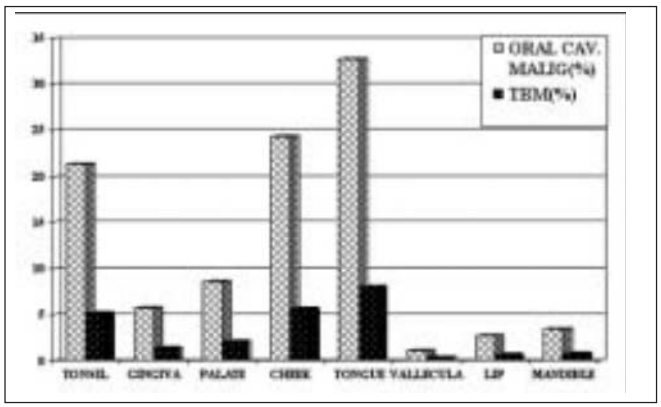

Figure 2: Incidence of malignancies in various sites within oral cavity

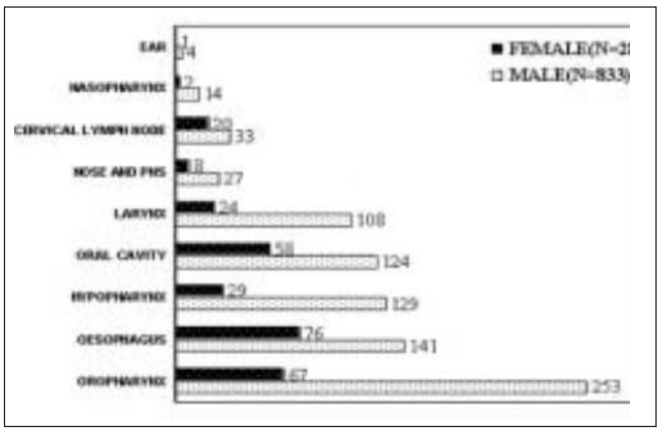

Figure 3: Gender Disribution Of Hnca

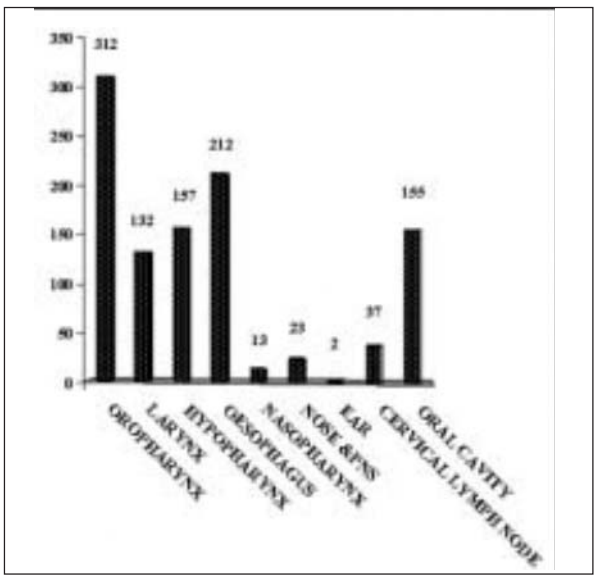

Figure 4: Distribution of scc in various head and neck malignancy

Table 1: Number of cases of various HNCA in relation to age

Age group	Oral Cavity	Oropha-rynx	Hypopha-rynx	Larynx	Oesophagus	Nasopha rynx	Nose & PNS	Ear	Cerv. Lymph	Total (%)
0-9	2	0	0	0	0	1	1	1	2	7 (0.6)
10-19	1	0	0	1	1	2	2	0	2	9 (0.8)
20-29	9	3	2	1	2	2	0	0	3	22 (1.9)
30-39	28	39	17	10	23	1	4	1	11	134 (2.0)
40-49	28	72	34	30	72	3	6	1	9	255 (22.8)
50-59	64	111	51	36	62	4	7	1	12	348 (31.1)
60-69	34	64	33	40	40	3	7	0	10	202 (18.0)
70-79	14	24	17	10	15	0	6	1	4	91 (8.1)
80+	2	7	4	4	2	0	2	0	0	21 (1.9)
Total	182	320	158	132	217	16	35	5	53	118

[Figure 4]. It is followed by verrucous carcinoma (1.52% cases). Similar results were reported in other studies, values ranging from 88.1% to 95.5%.[17,19] SCC is also the commonest type seen in laryngeal (100%) and hypopharyngeal (99%) cancers. In the cancers of oral cavity verrucous carcinoma formed only 1.5% cases, the rest being SCC. One case each of basal cell ca, sarcomatoid carcinoma, myxoid chondrosarcoma, and plasmacytoma and four cases each of ameloblastoma and giant cell reparative granuloma were encountered. SCC is also the commonest histological type seen in oesophageal, nasopharyngeal and carcinoma of nose and PNS. 4 cases of inverted papilloma of nose were also encountered. About 70% cases of cervical lymph node cancers were found to be SCC and more than 10% cases were Hodgkin's disease and Non-Hodgkin's disease. A case of malignant fibrous histiocytoma of oral cavity and lymph node each was also diagnosed [Table 2].

Pattern of malignancies at various sites

Oropharyngeal cancer: It is the commonest site involved comprising of 15.56% of TBM and 28.62% of HNCA, male: female ratio being 3.8:1. It is also the commonest HNCA in males forming 12.33% of TBM and second most common in females. In a study by S. Thakur et al (2001), oropharyngeal carcinoma was reported to be the third commonest (7.3% of TBM and 16.9% of HNCA) with male: female ratio of 3.4:1.Other study ranges from 6.6% to17.1% of HNCA with male:female ratio ranging from .7:1 to 8.3:1.[11,15,17] This may be due to tobacco chewing, smoking and consumption of pan masala (flavouring agents taken along with betel leaf and betel-nut); more seen amongst male. The commonest histological type seen in such cases is SCC comprising of 97.5% which is similar to other studies (93.3% to 98.2%).[19,20]

Esophageal cancer is the second commonest accounting for 10.58% of TBM and 19.41% of HNCA. The male: female ratio being 1.86:1. It is reported to comprise of 3.8% to 8.1% of TBM with male: female ratio ranging from 1.3:1 to 5.1:1.[20,12,14,15,18]

Oral cavity is the third commonest HNCA observed in this study comprising of 8.87% TBM and 16.28% of HNCA with male: female ratio of 2.14:1. As reported in other series, oral cavity cancers comprised of 10.2-10.5% of TBM and 24.4-28.2% of HNCA[10,18-20] with male: female ratio of 1.6:1 to 3.9:.[20] Squamous cell carcinoma (SCC) is the most common histology seen (85.12%). S. Thakur et al (2001) and Manjari et al (1996) reported it to be 93.3% to 95%. The dominant site involved was the tongue (32.67%) which is much less than as reported by Singh et al (1965) (49.13%). About 50.55% of cases in the study were between 41 to 60 years of age which is similar to findings in other studies.[2,6,19]

Hypopharyngeal carcinoma is the fourth commonest of HNCA comprising of 7.7% of TBM and 14.13% of HNCA with male:female ratio of 4.45:1 .Other workers have reported it to be 2.3% to 5.8% of TBM and 11.7% to 28.3% of HNCA[1,15,17,19,20] and the male: female ratio of 3.6:1 to 5.8:1.[15,20] Here too, SCC is the commonest histological type comprising of 99.37% cases similar to as reported by S.Thakur (2001), (97.8%). The maximum number of cases were in the age group between 30-79 years of age, as similar to other studies.[13,19]

Laryngeal carcinoma is the fifth commonest of HNCA comprising of 11.81% of TBM with male: female ratio of 4.5:1. Various workers have reported it to be 1.4-12.1% of

Table 2: Histopathological types of head and neck malignancy

Histopatho - Logical Types	Oral Cavity	Lar-ynx	Hypo-pharynx	Oesop-hagus	Nasopha rynx	Nose & PNS	Ear	Cerv. Lymph	Oralc-cavity	Total (%)
SCC	312	132	157	212	13	23	2	37	155	1043 (93.0)
Adeno. ca	1	—	1	5	—	1	1	—	—	9 (0.8)
Ad. cys. ca	3	—	—	—	1	1	—	—	2	7 (0.63)
Verr. ca	2	—	—	—	—	1	1	—	13	17 (1.52)
Myx. chdsar.	—	—	—	—	—	2	—	—	—	2 (0.12)
Plasmacyt.	—	—	—	—	—	—	—	—	1	1 (0.09)
Amelob.	—	—	—	—	—	—	—	—	4	4 (0.36)
Giant cell rep. gran.	—	—	—	—	—	—	—	—	4	4 (0.36)
Inv. pap.	—	—	—	—	—	4	—	—	—	4 (0.36)
Hodgkins disease	—	—	—	—	—	—	—	9	—	9 (0.8)
Non Hodgkins disease	—	—	—	—	—	—	—	6	—	6 (0.54)
Mucoepid. ca.	1	—	—	—	—	—	—	—	—	1 (0.09)
Acinic cell ca.	1	—	—	—	—	—	—	—	—	1 (0.09)
Emb. rhabdsar.	—	—	—	—	1	1	—	—	—	2 (0.12)
Basal cell ca	—	—	—	—	—	3	—	—	1	4 (0.36)
Sarcomatoid ca.	—	—	—	—	—	1	—	—	1	2 (0.12)
Malig. fib. hist.	—	—	—	—	—	—	—	1	1	2 (0.12)

SCC = squamous cell carcinoma, Adeno ca = adenocarcinoma, Ad.cys.ca = adenoid cystic carcinoma,Verr.ca = Verrucous carcinoma, Myx. chodsar = Myxoid chondrosarcoma, Plasmacyt. = Plasmacytoma, Amelob. = Ameloblastoma, Giant cell rep. gran. = Giant cell reparative granuloma, Inv. pap = Inverted papilloma, Mucoepid.ca = Mucoepidermoid carcinoma, Emb. rhabdsar. = Embryonic rhabdomyosarcoma, Malig. fib. hist = Malignant fibrous histiocytoma.

TBM and 11.3-26.85% of HNCA[14,19,20] with male female ratio in the range of 3.34:1 to 11.5:1.[3,8,14,15,18-20] Gangadharan et al (1997) and Jussawalla et al (1984) have correlated the development of laryngeal carcinoma with smoking habits. Maximum number of such cases was seen between age group of 41-60 years similar to as observed by Iwamoto (1972) and S.Thakur (1993).

Nose and PNS: It is the sixth commonest comprising of 3.13% of HNCA and 1.71% of TBM with male: female ratio of 3.38:1. Studies have reported carcinoma of nose and PNS in the range of .9-2.4% of TBM[11,19,20] and 5.9-11.55% of HNCA[9,15,19,20] with M:F ratio between 1.5:1-2.48:1.[5,11,15,19] Histologically, again SCC was the commonest. Four cases of inverted papilloma and three cases of basal cell carcinoma were also encountered. [Table 2]

Carcinoma of ear and nasopharynx were the least effected comprising of only 1.86% of HNCA and barely 1% of TBM. This figure is higher than as reported by S Thakur et al (.3%). This may be due to the high prevalence of nasopharyngeal carcinoma (NPC) seen in the nearby state of Manipur where NPC comprises of 8.8% of TBM.[11]

CONCLUSION

This study shows that, the prevalence of head and neck cancers is significantly high at 54.48%. Majority of HNCA are histologically squamous cell carcinoma affecting the age group 40-69 years with males outnumbering females (2.9:1).

Therefore, HNCA constituted a major burden of total body cancers in our hospital with prevalence higher than that reported in any other studies. The highest number of cases were of oropharyngeal cancers (15.56%) followed by esophageal cancers (10.58%). On the contrary, in females, esophageal cancer was commoner than oropharyngeal cancer. This finding is indicative of a pertinent fact that HNCA is a condition quite common in this part of the country which

requires prompt attention.

The increasing number of HNCA cases is a cause of major concern as it is associated with high morbidity and mortality in a sizeable population. Factors involved are poor socio-economic condition, oral consumption of tobacco in its various forms, use of lime with betel-leaf and betel-nuts, alcohol and smoking habits. Over and above, lack of awareness about cancer and non- existent cancer prevention programmes have all made the scenario even worse.

This study hopes to quantify and analyze the spectrum of HNCA and should help as a starting point for a much needed population based study in this region. A comprehensive effort is needed to identify the cause of such high prevalence, generate awareness and treatment options suited to meet this challenge.

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