



CLINICAL PROFILE OF HEAD AND NECK CANCERS: A RETROSPECTIVE ANALYSIS

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ABSTRACT

Head and Neck cancer (HNCA) is a recognized major public health concern all over the world. Aims- to study age and gender predilection, risk factors and clinical profile of head neck cancers. A retrospective study including 1162 patients with HNCA presented to ENT OPD at GMC Nagpur between period January 2013 to December 2017. Detailed history, clinical, cytological and radiological examination was done. Oral cavity cancers were 589 (50.68%), followed by larynx (19%) and hypopharynx (7.58%). Maximum patients between 50-60 years with male preponderance except for thyroid. Association of addiction and cancer was highly statistically significant. Conclusion - Oral cavity cancers were most common which is attributed to higher incidence of tobacco chewing alone or in combinations. Younger males though less but are increasing in numbers due to easy availability of tobacco and other products. Early detection and widespread awareness should be done to overcome such major public health issue.

KEYWORDS

Head neck cancers (HNCA), Squamous cell carcinoma (SCC), Personal Habits, Oral submucous fibrosis.

INTRODUCTION –

The global cancer burden is estimated to have risen to 18.1 million new cases and 9.6 million deaths in 2018. One in 5 men and one in 6 women worldwide develop cancer during their lifetime, and one in 8 men and one in 11 women die from the disease⁽¹⁾ (WHO 2018). In India Head and neck cancers (HNCA) is a major health problem and is sixth most common disease in males and seventh in females. Overall 57.5% of global HNCA occur in Asia, Out of which, 30 – 35% occurs in India. Oral cancers burden is 9.4 %⁽²⁾. More than 90% of head and neck cancers are squamous cell carcinoma (SCC) that arise from the mucosal surfaces of the oral cavity, oropharynx and larynx. HNCA in India has a variant demographic profile, etiological factors, food and personal habits.

The head and neck region constitute several delicate, intricately organized structures vital for basic physiological needs and crucial for appearance, expression and social interactions. HNCA can lead to structural and functional deformities depending on the site, size and pattern of spread.

In present study, retrospective analysis of patients with head and neck cancers were studied over 5 years with an aim to study the clinical profile of head and neck malignancy, personal habits, age and gender predilection, type of malignancy, its stage of presentation and management.

AIMS AND OBJECTIVES –

To study age and gender predilection, risk factors and clinical profile of head neck cancers.

MATERIALS AND METHODS –

A retrospective study conducted at tertiary hospital Government Medical College, Nagpur between the period of January 2013 to December 2017. This study included 1162 cases of head and neck cancers presented to ENT OPD. Detail history and examination was done in all patients. History related to personal addiction habits was noted in details. Radiological investigations like x ray, USG, CT scan and histopathological examination of biopsy tissue were done in all cases. Staging of the cancer were done according to TNM staging. Various sites of Head and neck region included in present study were; oral cavity, oropharynx, larynx, Hypopharynx, nose – paranasal sinuses – nasopharynx, salivary gland, thyroid gland, occult primary with neck secondaries and ear. Treatment modalities like surgery with or without plastic reconstruction followed by postoperative radiotherapy, radiotherapy alone, chemotherapy alone and radio-chemotherapy. Statistical analysis was done by applying chi square test.

Observations and Discussion –

Head and neck cancers are a significant problem in our country constituting approximately one-third of all cancer cases in contrast to 4–5% in the developed world. Cancer has become one of the ten leading causes of death in India. Takiar and Vijay (2011) have reported an increase of 55.8% cancer incidence in past 2 decades as per the national urban registries⁽³⁾. Data from population based registries under NCRP indicate that the leading sites of cancer are the oral cavity, lungs, oesophagus and stomach amongst men and cervix, breast and oral cavity amongst women.

Present study included 1162 cases of proven HNCA out of which, 860 were males and 302 were females with Male to female ratio of 2.85:1. Age range was 23 to 84 years with mean age of 53.36 years. Maximum patients were in the age group of 50 – 60 years. Four percent patients were in less than 30 years age group. Oral cavity cancers contributed maximum patients 589 (50.68%) followed by laryngeal cancers 221 (19%). There was male preponderance in all subsites of head neck except in thyroid and postcricoid cancers which showed female dominance.

Alam et al⁽⁴⁾ also noticed maximum patients in age group of 50- 60 years. They reported male female ratio of 16: 1. In various studies, Male: female ratio is commonly 1:1 - 3.1:1^(5,6). This male preponderance can be attributed to the easy acceptance of habits by males like tobacco, smoking and alcohol.

Personal addiction habits -

History of personal habits revealed that tobacco chewing was the most common habit noted in 372 (32%) followed by those who had the habit of both tobacco chewing and smoking which represented 220 cases (18.93%). Habit of all the three – smoking, tobacco chewing and alcohol were observed in 184 (15.83%). Alcohol addiction alone were noted in 70 (6%) patients. No addiction in 49 (4.21%) patients. Tobacco chewing alone and in combination with smoking was most commonly observed in oral cavity cancer patients (Table 2). The association of oral cavity, laryngeal and oropharyngeal cancers with addictions is statistically significant. Tobacco chewing is significantly associated with oral cavity cancers in our study.

Risk factors for developing cancers in Head & Neck region are mostly tobacco, alcohol, betel quid, radiation exposure, HPV and Epstein Barr Viruses. In India, tobacco consumption is responsible for half of all the cancers in men and a quarter of all cancers in women⁽⁷⁾. High prevalence of tobacco chewing is attributed to highest rates of oral cavity cancers in India⁽⁸⁾.

In present study smoking alone and smoking in combination with tobacco was present in more than 70% patients of laryngeal and oro-

hypopharyngeal cancers. Lewin et al⁽⁹⁾ stated that smoking is relatively more pronounced factor for cancer of pharynx (relative risk [RR]=8.5) and larynx (RR = 7.5) than cancer of oral cavity (RR = 4.9).

In present study, alcohol consumption was present in 39%, 19.56% and 11.41% cases of larynx, oropharynx and hypopharynx respectively. High alcohol consumption has relative risk > 5 mainly for oral cavity, oropharynx, and esophagus. When tobacco smoking and alcohol consumption are combined, they may increase the risk by more than 15 fold⁽¹⁰⁾. Alcohol may act as a solvent and enhance the penetration of carcinogens into target tissues. Acetaldehyde, alcohol metabolite, has been identified recently as a tumor promoter⁽¹¹⁾.

OSMF and oral cavity cancers -

Out of 589 patients, OSMF was noted in 284 (48.21%) patients. Association of OSMF and oral cavity cancers at various subsites was found to be statistically significant ($p < 0.0001$). It was noted in maximum patients of Alveolobuccal complex, buccal mucosa and tongue (Figure 1).

Oral cavity - Maximum patients were in the age group of 40 – 50 years with youngest patient of 29 years. Growth or ulcer in oral cavity was the most common complaint. Tongue was involved in 212 (36%), buccal mucosa (alveolobuccal complex + hard palate) in 261 (44.31%) and lip in 14 (2.38%) patients. Maximum patients presented in stage III and IV except in case of tongue where maximum patients were in stage I (29.24%) and II (42.45%) (Table no 4). Late stage presentation may be attributed to; remote rural population, lack of awareness among patients, relatives and referring doctors.

Sharma P et al⁽⁵⁾ reported that most common site as buccal mucosa, followed by the retro molar area, floor of mouth, lateral border of tongue, labial mucosa and palate. MS Alam⁽⁴⁾ also reported buccal mucosa as common site in oral cavity cancer. Akheel Mohammad et al⁽¹²⁾ reported tongue cancer (32.38%) as most common subsite followed by buccal mucosa with 29.77%. Shenoi P et al⁽¹³⁾ showed mandibular alveolus as most common subsite followed by buccal mucosa.

Maximum patient were of SCC 577 (98%) followed by verrucous carcinoma 12 (2%). In a study by Shubha P Bhat et al⁽¹⁴⁾ SCC was the most common histological type (82.6% cases) followed by Verrucous carcinoma (7.9%) and 2 cases each of sarcomatoid squamous cell carcinoma and undifferentiated nasopharyngeal type carcinoma, one case each of basaloid and acantholytic variant of squamous cell carcinoma.

Larynx – 221 cases were documented with laryngeal cancers with age range of 37 to 84 years. Maximum patients were in the age group of 55-75 years with mean age of 61.12 years. Male to female ratio was 13.73: 1. Dysphagia or odynophagia was the most common complaint. Change in voice was present in 102 (46.15%) cases. 92 (41.63%) cases presented with stridor to emergency room and tracheostomy was done. Supraglottis (68.28%) was the most common site involved followed by glottis (28%) and subglottis (3.17%). 82.35% patients presented in stage II and III (Table 3). All cases were of SCC.

According to recent studies, larynx was most common site of HNCA⁽¹⁵⁾. N Arora et al⁽¹⁶⁾ observed supraglottis as most common site for tumour localization. Larizadeh et al⁽¹⁷⁾ reported male dominance among laryngeal cancers. In a study by N Arora et al⁽¹⁶⁾, common stage of presentation was T1 and T2 followed by T3 and T4.

Oropharynx – Carcinoma oropharynx were in 79 (6.8%) cases. Various subsites included under oropharyngeal cancers; base of tongue and vallecula 46 (58.23%), tonsil 24 (30.38%), posterior pharyngeal wall 2 (2.53%) and soft palate 7 (8.86%). Dysphagia or odynophagia was noted in all cases. Earache was complained by 36.70% cases of same side of lesion. All patients were in the age range of 45 to 79 years with mean age of 56.55 years and maximum patients were between 56-60 years group. Male to female ratio was 2.95:1. Biopsy showed; SCC 74 (93.67%) and Non-Hodgkin's lymphoma of tonsil 5 (6.33%) cases. Majority patients presented in early stage. Shetty et al⁽¹⁸⁾ diagnosed 22 cases of oropharyngeal cancer out of which 2 were lymphomas from tonsillar region. Shubha Bhat⁽¹⁴⁾ reported 11.8% cases of tongue base and tonsil each.

Hypopharynx – Total 76 (6.54%) cases of hypopharyngeal cancer were diagnosed. Pyriform fossa 50 (65.78%), postcricoid 18 (23.68%)

and posterior pharyngeal wall 8 (10.52%). Age range was 43 – 76 years with maximum patients in 50-60 years with mean age of 53.67 years. Male to female ratio was 2.45:1. Female preponderance was noted in cases of postcricoid cancers 16/18 (88.88%). All cases had SCC. Maximum patients presented in stage II and III (Table 4). 12 (1%) cases of **upper oesophageal cancers** were noted in present study.

Nose, paranasal sinuses (PNS) and Nasopharynx cancers – 29 cases of nasal – paranasal sinus cancer and 7 cases of nasopharyngeal cancers were present. Age range of 33 – 67 years, maximum patients between 40-50 years with mean age of 48.23 years. Male preponderance with male to female ratio – 2 : 1. In nose and PNS, SCC (65.51%) was the most common, followed by adenocarcinoma (17.24%), Non Hodgkin's lymphoma (3.44%), olfactory neuroblastoma (10.34%) and rhabdomyosarcoma (3.44%). All nasopharyngeal cancers were SCC.

Thyroid cancers – Total 75 (6.45%) cases of thyroid cancers, with age range of 23 – 69 years with maximum in 40 – 50 years. Female preponderance with M:F ratio of 1: 2.75 was noted. Papillary cancer – 46 (61.33%), Follicular cancer – 12 (16%), Medullary cancer – 2 (2.66%), Anaplastic cancer – 15 (20%). 49 cases were diagnosed on fine needle aspiration cytology and 26 cases were diagnosed on post-operative histopathology as papillary cancer.

Thyroid carcinoma accounts for 92% of cancers of endocrine glands. Cooper et al observed, papillary histotype (85%) as most common type⁽¹⁹⁾. In the last three decades, the incidence of thyroid carcinoma has increased sharply, with the increasing trend restricted almost exclusively to the papillary histotype. Machens A et al⁽²⁰⁾, in his study on gender disparities between male and female patients with thyroid cancer found that increase in primary tumour diameters and lymph node metastasis were seen significantly more often in male patients. Although, clear relation between gender and PTC (and other histological types of thyroid cancer) has been established, the exact reason behind these gender disparities remains to be solved and the effects of oestrogen on thyroid cancer cells is being actively explored⁽²¹⁾.

Salivary gland cancers – 50 cases of salivary gland cancers in the age range of 29 – 72 years with maximum patients in 40 – 60 years. Male to female ratio – 2.33: 1. Various subsites included; Parotid – 35 (70%), Submandibular – 8 (16%), minor salivary gland and Sublingual – 7 (14%). Parotid gland was most commonly involved. Among various Histopathological variants adenoid cystic carcinoma was most common (56%) followed by mucoepidermoid carcinoma (42%). Mucoepidermoid carcinoma 20/35 (57.14%) was seen in parotid region whereas adenoid cystic carcinoma was observed in submandibular (100%) and sublingual gland (85.71%).

The annual incidence of salivary gland tumours varies around the world from approximately 0.4–13.5/100,000 people. Salivary gland neoplasms account for <3% of all the neoplasms occurring in the head-and-neck region and are therefore relatively rare.

Subhashraj⁽²²⁾ reported adenoid cystic carcinoma (25%) and mucoepidermoid carcinoma (18%). Sardar et al⁽²³⁾ in his study on 75 cases of salivary gland tumour reported Mucoepidermoid carcinoma as most commonly occurring malignant tumor in parotid gland.

Occult primary with neck secondaries –

23 patients present to ENT OPD with swelling over lateral aspect of neck involving various level of neck nodes. Age range – 46- 78 years with maximum patients in age group of 50 – 60 years.

Male to female ration – 2.83: 1. Epithelial deposits of SCC were reported in FNAC of all cases. All patients were subjected to panendoscopies and radiological investigation like CT neck + thorax. No evidence of primary malignancy was noted and hence all cases were diagnosed under “unknown primary with neck secondaries”.

Metastatic carcinoma in the lymph nodes of the neck from an unknown primary is relatively rare, accounting for about 3% of all head and neck cancers. Patients who have a metastatic neck lymph node will have their primary tumors discovered in more than 90% of the cases through a careful physical examination, computed tomography (CT) and/or magnetic resonance imaging, endoscopy and biopsies and, more recently, by elective tonsillectomies and newer imaging techniques such as positron emission tomography scans⁽²⁴⁾.

Ear cancer – A 63 year female patient with swelling over left pinna, diagnosed as basal cell carcinoma was included in present study.

Comparison with other studies (table no 5)

CONCLUSION –

Head neck cancers are one of the most common malignancies prevalent in India and are major public health burden. There are wide variations in risk factors, sites of involvement, geographical, and demographic characteristics. Tobacco and its products alone or in combination is associated with high risk for oral cavity cancers. Incidence is increasing in younger age groups because of easy

availability of tobacco and its products. Widely spread educational campaigns against determinant factors should be introduced in order to reduce incidence rates. Health educational camps should be organized to aware people about signs of cancers, importance of early detection and treatment. Referring medical or paramedical personals should be trained to detect cancers at early stage.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

Table No 1 – Clinical Profile of Head Neck cancers.

Site	Number	Male	Female	M : F ratio	Major symptom
1. Oral cavity	589 (50.68 %)	414 (70.28 %)	175 (70.28 %)	2.36:1	
a. Buccal mucosa (Alveolobuccal)	238 (40.40%)	163(68.48 %)	75(31.51%)	2.26:1	Growth
b. Tongue	212 (36%)	132 (62.26 %)	80 (37.73%)	1.65:1	Growth/ ulcer
c. Alveolus	102 (17.31 %)	90 (88.23 %)	12 (11.76%)	7.5:1	Growth and loosening of tooth
d. Lip	14 (2.38 %)	11 (78.57 %)	3 (21.42%)	3.66:1	Growth over lip
e. Hard Palate	23(3.90%)	18(78.26%)	5(21.73%)		Growth
2.Larynx	221 (19%)	206 (93.21%)	15 (6.78%)	13.73:1	Change in voice, Dysphagia
3.Hypopharynx	76 (6.54%)	54 (71.05%)	22 (28.94%)	2.45:1	Dysphagia
4.Upper oesophagus	12 (1%)	9 (75 %)	3 (25 %)	3:1	Dysphagia
5.Oropharynx	79 (6.8%)	59 (74.68%)	20 (25.31%)	2.95:1	Dysphagia, ear ache
6.Thyroid	75 (6.46%)	20 (26.66%)	55 (73.33%)	1:2.75	Swelling over anterior neck
7.Nose PNS Nasopharynx	36 (3.10 %)	24 (66.66 %)	12 (33.33%)	2:1	Nasal obstruction, nasal mass, epistaxis
8.Salivary gland	50 (4.31 %)	35 (70 %)	15 (30%)	2.33:1	Swelling
9. Occult primary	23 (2 %)	17 (73.91%)	6 (26.08%)	2.83:1	Lateral Neck swelling
10. Ear	1 (0.08%)	-	1 (100 %)		Mass over pinna
Total	1162	860 (74.01%)	302 (25.98%)	2.84:1	

Table No 2 – Personal Habits

Habit	Total Number	Percentage	Oral cavity	Larynx	Oropharynx	Hypopharynx	Others *
Tobacco chewing	372	32 %	240	39	69	16	08
Tobacco chewing + smoking	220	18.93 %	125	40	35	10	10
Smoking	186	16%	40	87	32	19	08
Tobacco chewing + alcohol + smoking	184	15.83%	42	72	36	21	13
Tobacco chewing + alcohol	81	06.97 %	35	14	17	8	7
Alcohol	70	06 %	10	18	15	19	8
No habit	49	04.21 %	14	8	17	5	5
Total	1162	100	506	278	221	98	59

*Nose,PNS, Nasopharynx, salivary gland, parotid, thyroid.

Table No 3 – Stage of presentation

Stage / site	Oral cavity except lip (n- 575)	Larynx (n- 221)	Oropharynx (n- 79)	Hypopharynx (n- 76)	Thyroid (n-75)	Nose PNS (n-36)	Salivary gland (n- 50)	Ear (n-1)
I	122 (21.21%)	15 (6.78 %)	18 (22.78 %)	21 (27.63%)	22 (29.33%)	23 (63.88%)	14 (28%)	1
II	165 (28.69%)	113 (51.13 %)	30 (37.97%)	33 (43.42%)	39 (52%)	13(36.11%)	28 (56%)	-
III	125 (21.73%)	69 (31.22%)	25 (31.64%)	15 (19.73%)	11 (14.66%)	-	6 (12%)	-
IV A	144 (25.03%)	24 (10.85 %)	6 (7.59%)	7 (9.21%)	3 (03.79%)	-	2 (4%)	-
IV B	19 (03.30%)	-	-	-	-	-	-	-
IV C	-	-	-	-	-	-	-	-

Table no 4 – Nose, PNS and Nasopharyngeal cancers

Type of cancer	Number of patient
Nose – Paranasal Sinuses (n- 29)	
1. Squamous cell carcinoma	19 (65.51%)
2. Adenocarcinoma	5 (17.24%)
3. Non Hodgkin's lymphoma	1 (3.44%)
4. Rhabdomyosarcoma	1 (3.44%)
5. Olfactory neuroblastoma	3 (10.34%)
Nasopharynx (n- 7)	
1. Squamous cell carcinoma	7 (100%)

Table No 5 – Comparison with other studies –

Subsites / Study	Present study	Akheel Mohammad (12) (2018)	Alam MS (4) (2017)
Tongue	212 (36%)	546 (30.29%)	115 (13.5%)
Buccal mucosa	261 (41.31%) Buccal mucosa + alveolobuccal complex + hard palate mucosa	502 (27.85%)	121 (14.2)
Alveolus	102 (17.31 %)	147(8.15%)	-
Lip	14 (2.38 %)	8(0.4%)	-
Larynx	221 (19%)	207 (11.48%)	179 (21.05)
Oropharynx	79 (6.8%)	62 (3.44%) + 49 (2.9%) tonsil	271 (31.88)

Hypopharynx	76 (6.54%)	25 (1.38%)	36 (4.23)
Nose PNS Nasopharynx	36 (3.10 %)	51 (3.02%) + 21 (1.16%)	19 (2.23) + 6 (0.70)
Thyroid	75 (6.46%)	116(6.4%)	4 (.47)
Salivary gland	50 (4.31 %)	11(0.6%)	8 (0.94)
Occult primary	23 (2 %)	-	44 (5.17)
Ear	1 (0.08%)	-	2 (.23)

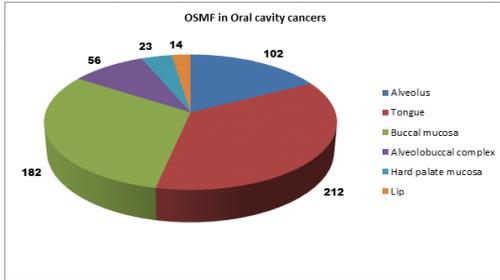


Figure No 1 – Oral Submucous Fibrosis in Oral cavity cancers

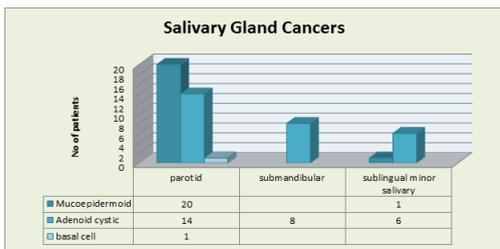


Figure No 2 – Salivary Gland Cancers



A – Basal cell carcinoma of left pinna
 B – Squamous cell carcinoma of lower lip
 C – Unknown Primary with neck secondaries
 D – Nasal Mass

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