

Original Research Article

A retrospective study on head and neck malignancies in a tertiary care hospital in Telangana region

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ABSTRACT

Background: Globally head and neck cancers constitute amongst 10 most common cancers. In Asia especially in India, global head and neck cancers account to 57.5%. However the true incidence of head and neck cancers in India is hidden suggesting it as 'tip of iceberg'. India is regarded as having the greatest risk of cancer burden, the reason being population overgrowth. India being the country of diversity, varied cultures and traditions, the demographic characteristic of these cancers also vary in different individuals.

Methods: All patients diagnosed with head and neck malignancy after histological confirmation between August 2014 and July 2018 were selected from hospital records. Data regarding age, gender, risk factors, socio economic status, clinical features, staging were taken and statistical analysis was done.

Results: A total of 269 cases were collected out of which, 77% of all malignancies in males and 23% in females. Squamous cell carcinoma was the most common histological type (94%). Maximum Incidence of HNC (51.6%) was in 40-60 yrs of age. Tobacco was most prevalent risk factor: 58.36% patients present at early stage, 41.63% present at late stage.

Conclusions: Oral cancers were most common among all. There is male predominance. Tobacco is the most common modifiable risk factor and most patients presenting at an early stage.

Keywords: Head and neck malignancy, Squamous cell carcinoma, Tobacco, Oral cancers

INTRODUCTION

Globally head and neck cancers constitute amongst 10 most common cancers. In developing countries it accounts for the most common cancers especially Southeast Asia.¹ In Asia especially in India, global head and neck cancers account to 57.5%. Each year in India nearly 200,000 cases of head and neck cancers occur, of which around 80,000 cases are diagnosed to be oral cavity malignancy.² However the true incidence of head and neck cancers in India is hidden suggesting it as 'tip of iceberg'. India is regarded as having the greatest risk of cancer burden, the reason being population overgrowth.³ India being the country of diversity, varied cultures and traditions, the demographic characteristic of these cancers also vary in different individuals.⁴

Maximum incidence of head and neck cancers occur in 5th–6th decade of life.⁵ Oral cancers occur after 5th decade,² oropharyngeal⁶ and laryngeal in 6th–8th decade,⁷ sinonasal in 6th and 7th decade,⁸ salivary gland in 4th – 5th decade,⁹ nasopharyngeal has bimodal age distribution i.e., 2nd decade and 5th decade of life.¹⁰

In India, head and neck cancers accounts to 25% of male cancers and 10% of female cancers.¹

Maximum incidence of these cancers is seen in males except for thyroid malignancies which is common in females.^{1,11}

Highest incidence of head and neck cancers is noted in low socio economic status.¹²

Tobacco smoking and smokeless and chewable forms of tobacco, alcohol consumption are the major contributors to these cancers. Other risk factors include genetic makeup of individual, dietary habits, nutritional deficiencies, chronic infections, poor oral hygiene, ill fitting dentures, occupational exposure and HPV.³

The most common site of head and neck cancer in males is oral cavity, buccogingival sulcus being the commonest subsite.²

Majority of head and neck cancers present to hospital at advanced stage responsible for delay in diagnosis and management, decreasing the survival rate.² Head and neck cancers constitute one of the leading causes of death both in developed and developing countries.³ Hence screening of high risk individuals and early diagnosis is crucial to decrease the mortality of head and neck cancers.

Aim

To study epidemiological, clinical and histopathological features of head and neck malignancy patients from a tertiary care hospital in Telangana region. To identify the etiological factors, related to life style, causing head and neck malignancy which can be easily modified. To determine the stage of presentation.

METHODS

The retrospective study was conducted in the Department of Otorhinolaryngology, Tertiary Care Hospital, Telangana on 269 cases diagnosed with all head and neck malignancy cases which were proved by histopathological examination, between August 2014 and July 2018.

Inclusion criteria

Inclusion criteria were all malignancy cases of head and neck.

Exclusion criteria

Exclusion criteria were carcinoma unknown primary; cervical esophageal malignancies; from other states.

Data regarding age, gender, risk factors, socio economic status, clinical feature, staging were taken and statistical analysis was done.

RESULTS

Maximal incidence of age in all malignancies is between 41-60 years except non Hodgkins lymphoma where 21-40 years age group is most commonly affected. Males are more commonly affected than females except in thyroid malignancy and non Hodgkins lymphoma. Low socio economic status people are more commonly affected.

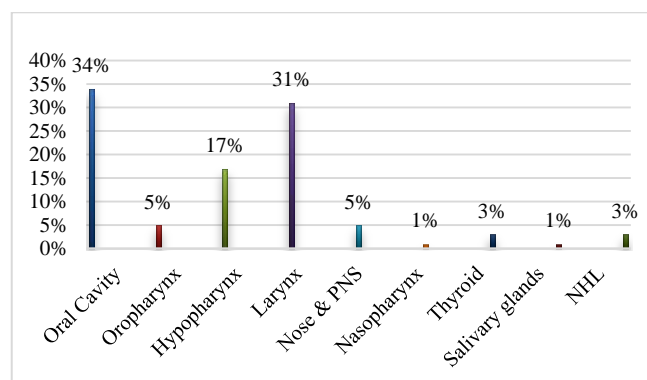


Figure 1: Site of malignancy distribution of study population.

Table 1: Age, gender, socioeconomic status distribution of study population.

Age	Oral cavity (n=93)	Oropharynx (n=13)	Hypopharynx (n=47)	Larynx (n=85)	Nose and PNS (n=15)	Nasopharynx (n=4)	Thyroid (n=9)	Salivary glands (n=3)	NHL (n=8)
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
<20	0	0	1 (2)	0	0	0	1 (11)	0	2 (25)
21-40	31 (33)	2 (15)	5 (11)	3 (3)	0	1 (25)	3 (33)	1 (33)	4 (50)
41-60	44 (48)	7 (54)	26 (55)	45 (53)	7 (46)	3 (75)	4 (45)	2 (67)	2 (25)
>60	18 (19)	4 (31)	15 (32)	37 (44)	8 (54)	0	1 (11)	0	0
Gender									
Male	51 (55)	13 (100)	29 (62)	77 (91)	11 (73)	3 (75)	2 (22)	2 (67)	2 (25)
Female	42 (45)	0	18 (38)	8 (9)	4 (27)	1 (25)	7 (78)	1 (33)	6 (75)
SES									
BPL	89 (96)	13 (100)	43 (91)	80 (94)	15 (100)	4 (100)	9 (100)	2 (67)	6 (75)
APL	4 (4)	0	4 (9)	5 (6)	0	0	0	1 (33)	2 (25)

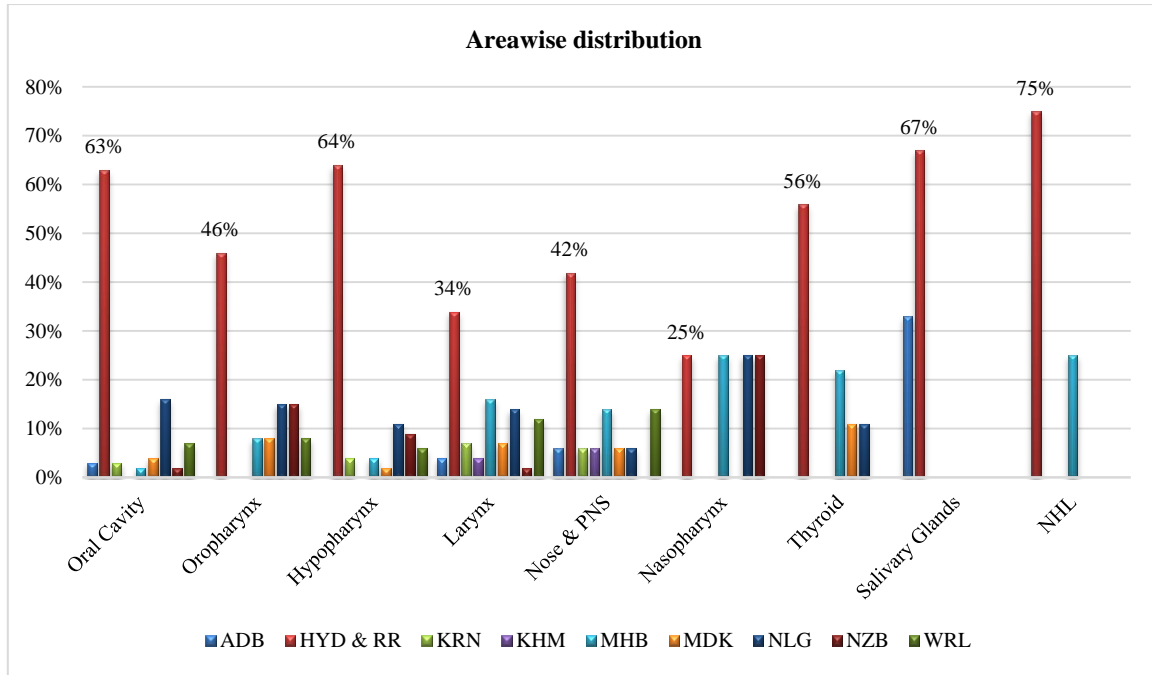


Figure 2: Area wise distribution of study population.

In most of the malignancies of head and neck tobacco and alcohol are the main risk factors, in thyroid, nasal and nasopharyngeal malignancies radiation plays a causative role.

Most common symptomatology for various head and neck malignancies are ulcerative growth for oral cavity malignancy, discomfort in throat for oropharyngeal malignancy, nasal obstruction and blood tinged nasal

discharge for nose paranasal sinuses and nasopharyngeal malignancies, change of voice for laryngeal malignancy, dysphagia for hypopharyngeal malignancy, neck swelling for thyroid malignancy, painless swelling for salivary gland malignancy and non Hodgkins lymphoma.

Most malignancies of oropharynx, nose, paranasal sinus, nasopharynx and NHL presented with cervical lymphadenopathy.

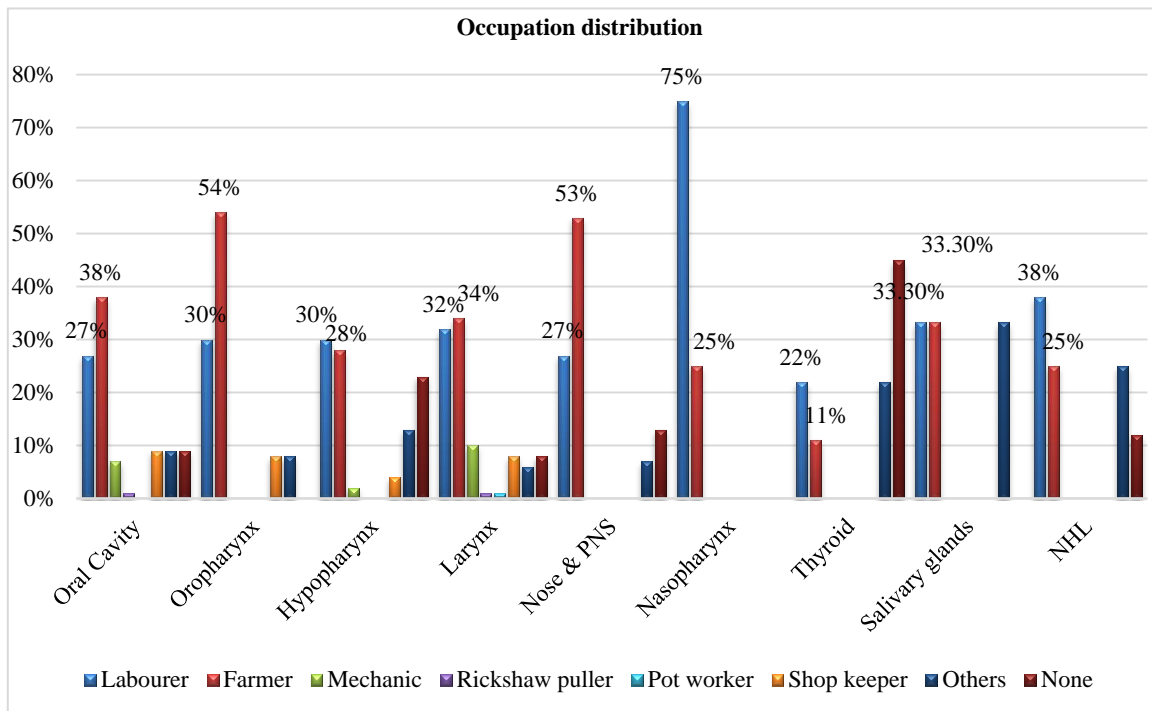


Figure 3: Occupation distribution of study population.

Table 2: Risk factors distribution of study population.

Risk factors	Oral cavity (n=93)	Oropharynx (n=13)	Hypopharynx (n=47)	Larynx (n=85)	Nose and PNS (n=15)	Nasopharynx (n=4)	Thyroid (n=9)	Salivary glands (n=3)	NHL (n=8)
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
None	0	0	8 (17)	2 (2)	6 (40)	2 (50)	7 (78)		8 (100)
Beedi/ cigarette smoker	20 (22)	6 (46)	2 (4)	33 (39)	4 (27)	1 (25)		1 (33.3)	
Tobacco chewer +alcohol	69 (74)	0	2 (4)	1 (1)					
Alcohol	1 (1)	3 (23)	20 (43)	8 (9)	2 (13)			1 (33.3)	
Smoking+drinking	3 (3)	4 (31)	15 (32)	41 (49)	2 (13)			1 (33.3)	
Radiation					1 (7)	1 (25)	2 (2)		

Table 3: Clinical presentation distribution of study population.

	N (%)
Oral cavity (n=93)	
Ulcerative growth	73 (78)
Proliferative growth	20 (22)
Oropharynx (n=13)	
Discomfort in throat	11 (85)
Difficulty in swallowing	2 (15)
Hypopharynx (n=47)	
Dysphagia	34 (72)
Change of voice	10 (22)
Shortness of breath	3 (6)
Larynx (n=85)	
Dysphagia	25 (29)
Change of voice	42 (50)
Shortness of breath	14 (16)
Neck mass	4 (5)
Nose and PNS (n=15)	
Nasal obstruction	15 (100)
Blood tinged nasal discharge	10 (67)
Epistaxis	5 (33)
Diplopia	3 (20)
Nasopharynx (n=4)	
Nasal obstruction	4 (100)
Diplopia	1 (25)
Epistaxis	3 (75)
Thyroid (n=9)	
Neck swelling	9 (100)
Change of voice	1 (11)
Salivary glands (n=3)	
Swelling	3 (100)
NHL (n=8)	
Swelling	8 (100)
Pain	2 (25)
SOB	1 (12.5)
Difficulty in swallowing	1 (12.5)
Change of voice	1 (12.5)
Nasal obstruction	1 (12.5)

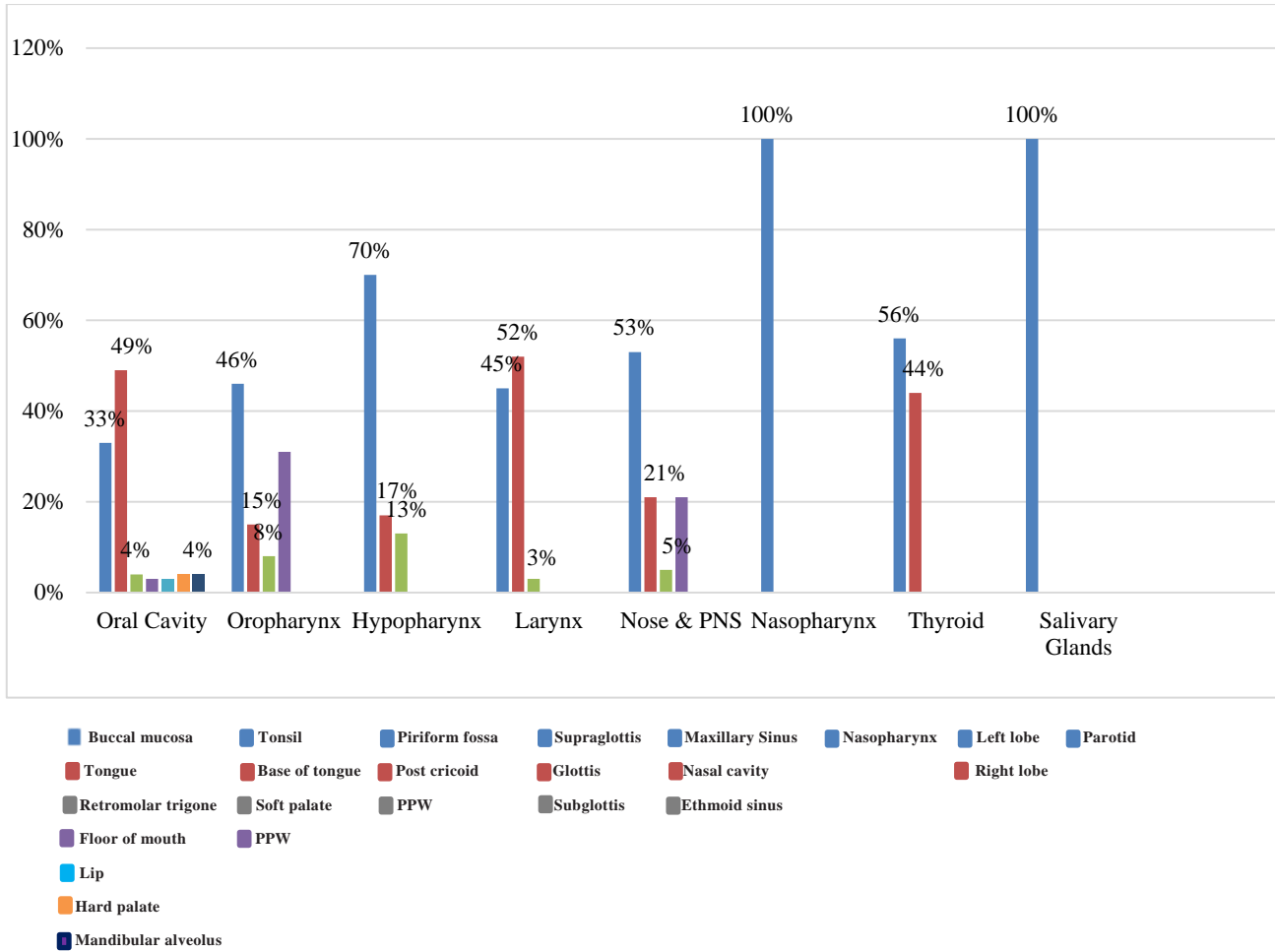


Figure 4: Location (subsite) distribution of study population.

Table 4: Nodal status distribution of study population.

Nodal Status	Oral cavity (n=93)	Oropharynx (n=13)	Hypopharynx (n=47)	Larynx (n=85)	Nose and PNS (n=15)	Nasopharynx (n=4)	Thyroid (n=9)	Salivary glands (n=3)	NHL (n=8)
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Palpable	41 (44)	9 (69)	20 (43)	31 (36)	9 (60)	2 (50)	1 (11)	0	5 (62.5)
Not palpable	52 (56)	4 (31)	27 (57)	54 (64)	6 (40)	2 (50)	8 (89)	3 (100)	3 (37.5)

Table 5: Stage of presentation distribution of study population.

Stage of Presentation	Oral cavity (n=93)	Oropharynx (n=13)	Hypopharynx (n=47)	Larynx (n=85)	Nose and PNS (n=15)	Nasopharynx (n=4)	Thyroid (n=9)	Salivary glands (n=3)	NHL (n=8)
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Stage I	0	0	3 (6)	22 (26)		0	6 (67)	0	0
Stage II	56 (60)	4 (31)	19 (40)	34 (40)	6 (40)	2 (50)	2 (22)	3 (100)	0
Stage III	37 (40)	9 (69)	25 (54)	25 (29)	9 (60)	2 (50)	1 (11)	0	0
Stage IV	0	0	0	4 (5)	0	0	0	0	0

Majority of oral, laryngeal and salivary gland malignancies presented in stage 2. Majority of oropharyngeal, hypopharyngeal, nose and PNS

presented in stage 3. Nasopharyngeal malignancies presented in stage 2 and stage 3 each accounting to 50%.

In oral, oropharyngeal, hypopharyngeal, laryngeal, nose and PNS, nasopharyngeal malignancies the HPE was suggestive of squamous cell carcinoma in majority of cases (86-100%). In Thyroid malignancies majority are

papillary carcinoma (67%). In Salivary gland malignancies majority are mucoepidermoid carcinoma (67%). Suggesting the highest incidence of squamous cell carcinoma in head and neck cancers.

Table 6: Histopathological examination distribution of study population.

HPE	Oral cavity (n=93)	Oropharynx (n=13)	Hypopharynx (n=47)	Larynx (n=85)	Nose and PNS (n=15)	Nasopharynx (n=4)	Thyroid (n=9)	Salivary glands (n=3)	NHL (n=8)
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Squamous cell carcinoma	92 (99)	12 (92)	47 (100)	83 (98)	13 (86)	4 (100)	-	-	-
Adenocarcinoma	1 (1)	-	-	-	-	-	-	-	-
Lymphoma	-	1 (8)	-	1 (1)	1 (7)	-	-	-	-
Osteosarcoma	-	-	-	1 (1)	-	-	-	-	-
Undifferentiated	-	-	-	-	1 (7)	-	-	-	-
Papillary	-	-	-	-	-	-	6 (67)	-	-
Follicular	-	-	-	-	-	-	1 (11)	-	-
Medullary	-	-	-	-	-	-	2 (22)	-	-
Mucoepidermoid	-	-	-	-	-	-	-	2 (67)	-
Acinic cell	-	-	-	-	-	-	-	1 (33)	-

DISCUSSION

In the present study 269 cases of head and neck malignancies which presented to tertiary care hospital, Telangana were followed retrospectively.

The following observations were noted based on age distribution of study population (Table 1).

In oral cavity, oropharyngeal, hypopharyngeal, laryngeal, nasopharyngeal, thyroid, salivary gland malignancies maximum incidence was noted in 41–60 yrs of age group accounting to 48%, 54%, 55%, 53%, 75%, 45%, 67% respectively. In sinonasal malignancies maximum incidence was noted in >60 yrs of age group accounting to 54% which is in accordance to Satarkar et al study in which it was common in 6th–7th decades of life.⁸ In NHL maximum incidence was noted in 21–40 yrs of age group accounting to 50%. Suggesting the maximum incidence of head and neck cancers in the age group of 41–60 years except for NHL and sinonasal malignancies. This is in accordance to Alam et al study in which the incidence was common in 40–60 yrs of age group.¹³

The following observations were noted based on gender distribution of study population (Table1).

In oral cavity, oropharyngeal, hypopharyngeal, laryngeal, sinonasal, nasopharyngeal, salivary gland malignancies maximum incidence was noted in male gender accounting to 55%, 100%, 62%, 91%, 73%,

75%, 67% respectively. In Thyroid malignancies and NHL the maximum incidence was noted in female gender accounting to 78%, 75% respectively. Suggesting the maximum incidence of head and neck cancers in male gender exception being Thyroid malignancies and NHL. This is in accordance to Francis study in which the highest incidence was noted in males and Carcangiu et al study in which Thyroid malignancies were noted predominantly in females.^{1,11}

The following observations were noted based on Areawise distribution of study population (Figure 2).

In oral cavity, oropharyngeal, hypopharyngeal, laryngeal, sinonasal, thyroid, salivary gland malignancies and NHL maximum incidence was noted in Hyderabad and Rangareddy district accounting to 63%, 46%, 64%, 34%, 42%, 56%, 67%, 75% respectively. Nasopharyngeal malignancies were noted each in Hyderabad and Rangareddy, Mahboobnagar, Nalgonda and Nizamabad each accounting to 25%. Suggesting the maximum incidence of head and neck cancers in Hyderabad and Rangareddy district.

The following observations were noted based on Occupation distribution of study population (Figure 3):

In oral cavity, oropharyngeal, laryngeal, sinonasal malignancies maximum incidence was noted in farmers accounting to 38%, 54%, 34%, 53% respectively. In hypopharyngeal, nasopharyngeal malignancies and NHL maximum incidence was noted in labourers accounting to 30%, 75% 38% respectively. In thyroid

malignancies maximum cases fell into none of the above category (45%). Suggesting the maximum incidence of head and neck cancers in farmers and labourers. According to the Socioeconomic status distribution, maximum incidence of head and neck cancers was noted in BPL families (Table 1). This is in accordance to Francis study in which the maximum incidence was noted in BPL families.¹

Risk factor distribution in the present study depicted tobacco chewing and alcohol consumption as most common risk factor for Oral malignancies (74%) which is in accordance to Dandekar et al study.⁴ Beedi/cigarette smoking as most common risk factor for oropharyngeal malignancies (46%) which is in accordance to Alam et al study, alcohol being the most common risk factor for hypopharyngeal malignancies (43%) and smoking + drinking (49%) as most common risk factor for laryngeal malignancies which is in accordance to Maier et al study.^{13,14}

The following observations were noted based on clinical presentation distribution of study population:

The oral malignancies presented as ulcerative growth in majority of cases (78%). The oropharyngeal malignancies presented as discomfort in throat in majority of cases (85%). The hypopharyngeal malignancies presented as dysphagia in majority of cases (72%). The laryngeal malignancies presented as change in voice in majority of cases. The nose and PNS malignancies presented as nasal obstruction (100%) which is in accordance to Lathi et al study followed by blood tinged nasal discharge (67%) in majority of cases.¹⁵ The nasopharyngeal malignancies presented as nasal obstruction in 100% of cases followed by epistaxis in 75% of cases. The thyroid malignancies presented as neck swelling in 100% of cases which is in accordance to Pramod et al study.¹⁶ 100% of salivary gland malignancies presented with swelling. In NHL, all 8 cases presented with swelling (100%) and 2 cases with pain (25%), 1 case with SOB (12.5%), 1 case with difficulty in swallowing (12.5%), 1 case with change of voice (12.5%), 1 case with nasal obstruction (12.5%).

The following observations were noted based on subsite distribution of study population:

The most common subsite for oral malignancies was tongue (49%) which is in accordance to Rivera et al study followed by buccal mucosa (33%).¹⁷ The most common subsite for oropharyngeal malignancies was tonsil (46%) followed by posterior pharyngeal wall (31%) which is in accordance to Sanghvi et al.¹⁸ The most common subsite for hypopharyngeal malignancies was piriform fossa (70%) followed by post cricoid (17%) which is in accordance to Sanghvi et al.¹⁸ The most common subsite for laryngeal malignancies was glottis (52%) followed by supraglottis (45%). The most common subsite for nose and PNS malignancies was maxillary sinus (53%)

followed by nasal cavity (21%) which is in accordance to Satarkar et al.⁸ The most common lobe affected in thyroid malignancies was left lobe (56%). The most common salivary gland involved in malignancies was parotid gland (100%) which is in accordance to Bobati et al.⁹ The most common site for head and neck cancers was oral cavity in present study which is in accordance to Dandekar et al study.⁴

The following observations were noted based on nodal status distribution of study population:

In oral, oropharyngeal, hypopharyngeal, laryngeal, nose and PNS, nasopharyngeal malignancies the HPE was suggestive of squamous cell carcinoma in majority of cases accounting 99%, 92%, 100%, 98%, 86%, 100% respectively. In thyroid malignancies HPE was suggestive of papillary carcinoma in 67% of cases. In salivary gland malignancies HPE was suggestive of mucoepidermoid carcinoma in 67% of cases.

The following observations were noted based on stage of presentation distribution of study population:

Majority of oral, laryngeal and salivary gland malignancies presented in stage 2 accounting to 60%, 40%, 100% respectively. Majority of oropharyngeal, hypopharyngeal, nose and PNS presented in stage 3 accounting to 69%, 54%, 60% respectively. Nasopharyngeal malignancies presented in stage 2 and stage 3 each accounting to 50%.

The following observations were noted based on histopathological examination distribution of study population:

In oral, oropharyngeal, hypopharyngeal, laryngeal, nose and PNS, nasopharyngeal malignancies the HPE was suggestive of squamous cell carcinoma in majority of cases accounting 99%, 92%, 100%, 98%, 86%, 100% respectively. In Thyroid malignancies HPE was suggestive of papillary carcinoma in 67% of cases which is in accordance to Rao et al study. In salivary gland malignancies HPE was suggestive of mucoepidermoid carcinoma in 67% of cases. Suggesting the highest incidence of squamous cell carcinoma in head and neck cancers. This is in accordance to Alam et al study in which squamous cell carcinoma was the most common histopathological type.^{13,18}

CONCLUSION

Head and neck cancer accounts for highest incidence in Telangana. The majority of risk factors are related to lifestyle and are modifiable. Screening programmes targeting on high risk individuals who are exposed to risk factors for developing head and neck malignancies are essential for early detection and early treatment thereby decreasing the morbidity associated with it.

Cancer control measure requires patient education and awareness, active involvement of each and every individual, screening programmes, coordinated research, infrastructure strengthening, resource development to provide utmost benefit to people.

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REFERENCES

- Francis D. Trends in incidence of head and neck cancers in India. The 5th Immunotherapy of Cancer Conference. *Eur J Cancer.* 2018;92(1):1-26.
- Kulkarni MR. Head and neck cancer burden in India. *Intern J Head Neck Surg.* 2013;4(1):29-35.
- Mishra A, Meherotra R. Head and Neck Cancer: Global Burden and Regional Trends in India. *Asian Pac J Cancer Prev.* 2014;15(2):537-50.
- Dandekar M, Tuljapurkar V, Dhar H, Panwar A, DCruz AK. Head and neck cancers in India. *J Surg Oncol.* 2017;115(5):555-63.
- National Cancer Registry Programme (ICMR) (2009). Consolidated report of HBCR: 2004-2006. Bangalore, India.
- Sharma D, Singh G. Squamous cell carcinoma of the oral cavity and oropharynx in young adults. *Indian J Cancer.* 2016;53(3):399-401.
- Chauhan JPS, Bharti B, Bhadouriya SS, Kumar A, Narain P, Singh J. Laryngeal cancer: A clinicopathological study of 65 cases. *Intern J Otolaryngol Head Neck Surg.* 2018;4(1):163-8.
- Satarkar R, Srikanth S. Tumors and tumor-like conditions of the nasal cavity, paranasal sinuses, and nasopharynx: A study of 206 cases. *Indian J Cancer.* 2016;53(4):478-82.
- Bobati SS, Patil BV, Dombale VD. Histopathological study of salivary gland tumors. *J Oral Maxillofac Pathol.* 2017;21(1):46-50.
- Haleshappa RA, Thanky AH, Kuntegowdanahalli L, Kanakasetty GB, Dasappa L, Jacob L. Epidemiology and outcomes of nasopharyngeal carcinoma: Experience from a regional cancer center in Southern India. *South Asian J Cancer.* 2017;6(3):122-4.
- Carcangiu ML, Zampi G, Pupi A, Castagnoli A, Rosai J. Papillary carcinoma of the thyroid. A clinicopathologic study of 241 cases treated at the University of Florence, Italy. *Cancer.* 1985;55(4):805-28.
- Warnakulasuriya S. Global epidemiology of oral and oropharyngeal cancer. *Oral Oncology.* 2009;45(4-5):309-16.
- Alam MS, Siddiqui SA, Perween R. Epidemiological profile of head and neck cancer patients in Western Uttar Pradesh and analysis of distributions of risk factors in relation to site of tumor. *J Cancer Res Ther.* 2017;13(3):430-35.
- Maier H, Gewelke U, Dietz A, Heller WD. Risk factors of cancer of the larynx: Results of the Heidelberg case: control study. *Otolaryngol Head Neck Surg.* 1992;107(4):577-82.
- Lathi A, Syed MM, Kalakoti P, Qutub D, Kishve SP. Clinico-pathological profile of sinonasal masses: A study from a tertiary care hospital of India. *Acta Otorhinolaryngologica Italica.* 2011;31(6):372-77.
- Pramod T, Shivaswamy BS, Ananth G, Rajashekara Babu G, Latha K, Jagadeesh K. Clinical Study of Carcinoma Thyroid and its Management. *International J Scientific Study.* 2016;3(10):36-42.
- Cesar Rivera. Essentials of oral cancer. *Int J Clin Exp Pathol.* 2015;8(9):11884-94.
- Sanghvi LD, Rao DN, Joshi S. Epidemiology of head and neck cancers. *Semin Surg Oncol.* 1989;5(5):305-9.

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