

# INCIDENCE OF HEAD AND NECK CANCERS-A HOSPITAL BASED STUDY

Hemavathi Reddy<sup>1</sup>, Arati Ganiger<sup>2</sup>, Arati Vatge<sup>3</sup>, K Mallikarjuna Swamy<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Pathology, Koppal Institute of Medical Sciences, Koppal, Karnataka, India.

<sup>2</sup>Assistant Professor, Department of Biochemistry, Koppal Institute of Medical Sciences, Koppal, Karnataka, India.

<sup>3</sup>Senior Resident, Department of Pathology, Koppal Institute of Medical Sciences, Koppal, Karnataka, India.

<sup>4</sup>Associate Professor, Department of ENT, Koppal Institute of Medical Sciences, Koppal, Karnataka, India.

## Abstract

**Background:** Head and neck cancers (HNCs) are the 6th most common malignancies worldwide. Asian populations bear major burden, emerging as a major health problem in India, with certain unique characteristics. Although significant research in HNCs is ongoing globally, many issues still remain unanswered. Planned collaborative research for control of non-communicable diseases is need of the hour for good quality data facilitate the attainment of set of goals to provide more evidenced based diagnosis and treatment. **Material and Methods:** Retrospective study of three years, included clinical investigation and demographic, cytology reports and histopathology studies. Data was also exported to Microsoft Excel for further analysis using Epi Info version 7.1.4. Microsoft Excel was used to generate charts and graphs. **Results:** A total of 46 cancer cases were detected from January 2017 to December 2019. Males accounted for 58.69% compared with females 44.18% of all cases. The overall incidence of cancer in KOPPAL was 36.8 per 100,000 population, oropharynx Squamous cell cancer harbor the maximum with well differentiated histological type. **Conclusion:** 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.

**Keywords:** Chemotherapy, head and neck cancers, radiation therapy, surgery.

**Corresponding Author:** Dr. K Mallikarjuna Swamy, Associate Professor, Department of ENT, Institute of Medical Sciences, Koppal, Karnataka, India. Email: drkmallikarjuna1980@gmail.com

## Introduction

Cancers of Head and neck is the fifth to seventh most common type of cancer worldwide and comprise of a large diverse group of tumours affecting the upper aerodigestive tract. In India, around 30–40% of all cancers are HNCs.<sup>[1]</sup> Out of which 9.4% being oral cancers. Although many different histologies exist, the most common is squamous cell carcinoma. With 77,000 cases diagnosed per year, HNCs are the second most common cancers in the Indian population.<sup>[2]</sup> Predominant risk factors include tobacco use, alcohol abuse, and oncogenic viruses, including human papillomavirus and Epstein-Barr virus.<sup>[3]</sup>

These pathological lesions arise at several anatomical sites in the head and neck region and originate from different organs and tissues with varying histology and biological behaviour.<sup>[4,5]</sup> Various anatomic sites include oral, upper aero-digestive tract, otologic,

thyroid, salivary glands, lymph nodes, skin and soft tissues.<sup>[6,7]</sup> Common benign and inflammatory lesions of head and neck region include various cysts and swellings of skin and subcutaneous tissues, Koch's and other inflammations, goiter, salivary gland swellings, lymphadenitis and oral lesions.<sup>[8-10]</sup>

Head and neck malignancies remain challenging to treat, requiring a multidisciplinary approach, with surgery, radiotherapy, and systemic therapy serving as key components of the treatment of locally advanced disease. Although many treatment principles overlap, treatment is generally site-specific and histology-specific. This study outlines the current understanding of type of head and neck cancer and while also discussing future directions to improve the site specific treatment of patients with these malignancies.

### Objectives

To study prevalence of head and neck cancer.

To study the histological type of head and neck cancers.

To aid to clinicians in diagnosis of head and neck cancers.

### Material and Methods

**Study Design:** Tertiary hospital based, Retrospective study

**Study participants:** All presumptive cases of head and neck cancers, suspected cases of lymphnode malignancies of head and neck region and cytologically confirmed cases of positive for malignancy of head and neck region swelling.

**Age group:** between the age group of <10yrs to >60 years of age were included in the study.

**Study Duration:** 3yrs (January 2017 to December 2019).

**Study site:** Data collected from 46 post operative cases of head and neck region, across the district teaching hospital at Koppal institute of medical sciences, Koppal, Karnataka.

**Sample Collection:** Histopathology samples collected at histopathology section at Dept of pathology Koppal Institute of Medical sciences Koppal.

**Inclusion Criteria:** All histopathologically confirmed cases of head and neck region which involved tongue, buccal mucosa, epiglottis, hypopharynx and nasopharynx were included in the study.

### Results

We reviewed the medical records of 362 HNSCC patients of whom 272 were males and 90 were females (the male to female ratio was 3:1). The results are shown in the tables given below

**Table 1: Characteristics of patients and Number of malignancies with patients' age**

Age in years	Number of Tumours
Gender	
Male	27
Female	19
Tobacco	
Smokers	35
Non smokers	11
Betel nut	
Chewers	37
Non chewers	09
Total	46

**Table 2: Three-year relative rates of head and neck cancers in our study**

Base of tongue	11
Soft palate	5
Lateral borders oftongue	8
Nasopharynx	3
Posterior tongue	2
Hypopharynx	6
Buccal Mucosa	5
Uvula	2
Hard palate	1
Epiglottis	2
Tonsil	1
Total	46

**Table 3: Number of cases of various HNCA in relation to age**

Age	Number of cases
0-20	5
21-40	8
41-60	15
>61	18
Total	46

**Table 4: Histopathological types of head and neck malignancy**

Histopathological types	Numbers
Well differentiated	17
Modereately differentiated	13
Poorly Differentiated	7
AdenoCarcinoma	1
Baso squamous cell Ca	3
Basal cell Ca	2
PlasmacytoidMyoepithelioma of hard palate	2
Mucoepidermoid Ca	1
Total	46

**Table 5: Type of cancer with frequency**

Site	Frequency
SCCa	37
Adeno Ca	1
Basosquamous Cell Ca	3
BCCa	2
Plasmacytoidmyoepithelioma	2
Neurofibroma	1
Total	46

**Table 6: Basis of Diagnosis for cancers**

Basis of diagnosis	Frequency
Histology	24
Clinical investigation	12

Cytology/Haematology	8
Specific tumour markers	2
Total	46

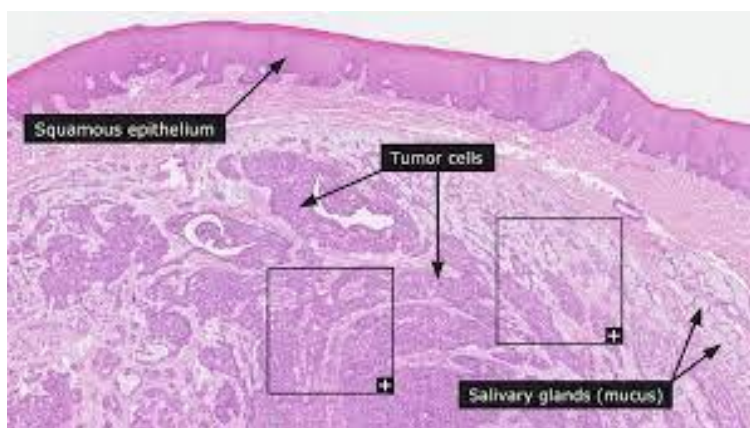
**Table 7: Number of cases**

Year	Number of cases
2016	12
2017	16
2018	18
Total	46

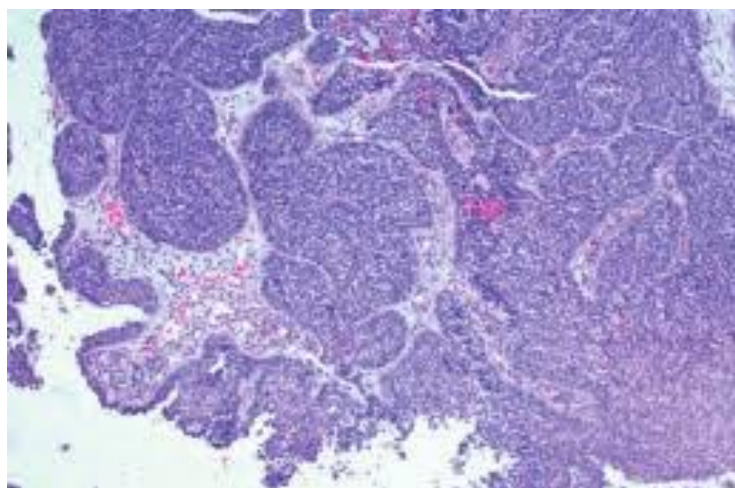
**Figure 1: Gross picture of carcinoma of buccal mucosa****Figure 2: Gross picture of carcinoma of the tongue**



**Figure 3: Gross picture of carcinoma hypopharynx**



**Figure 4: Microscopic pic of carcinoma tongue**



**Figure 5: Microscopy of carcinoma oropharynx**

### Discussion

Lesions arising from head and neck region are both diversified and challenging with each disease having its own distinct epidemiologic, anatomic and pathologic features, natural history and treatment considerations.<sup>[11,12]</sup> The whole spectrum of biopsied head and neck lesions include a variety of differential diagnosis ranging from inflammatory to neoplastic.<sup>[13]</sup> In our study we reviewed the medical records of 362 HNSCC patients of whom 272 were males and 90 were females.

In our study, the number of male patients was higher as compared to female patients with a male to female ratio of 3:1. Similar observation was noted in the study done by Urooj et al who reported 54% male and 46% female patients.<sup>[14]</sup>

A wide variety of lesions spanned across the seven topographic sites we analyzed.

Oral cavity lesions constituted 20.69% of present study and were found to be more common in males. The most common site of involvement was buccal mucosa followed by lip and tongue. Kosam and Kujur also noted similar findings.<sup>[15]</sup>

Lesions of the aero-digestive tract comprised of 17.24% cases in our data among which inflammatory lesions were the maximum followed by malignant. Inflammatory lesions included tonsillitis, adenoiditis and nasal polyps. Among the malignant lesions, squamous cell carcinoma was the most predominant malignancy.

Squamous cell carcinoma was the most frequently encountered malignancy in both these sites. These findings are indicative of the fact that head and neck cancers are amongst the commonest malignancies in India with Squamous cell carcinoma being the predominant histological type.<sup>[3,5,13,14]</sup> This could be attributed to the major preventable risk factors which are tobacco use, betel quid chewing and alcohol consumption. Lymph node biopsy plays an important role in establishing the cause of lymphadenopathy. Among the biopsied lymph nodes, in present study, tuberculous lymphadenitis was the commonest lesion followed by reactive lymphadenopathy. Salivary glands constituted only 6.89% of all the head and neck lesions studied. Parotid Gland was the commonest site of lesion and women were more frequently affected than men in present series.

Alcohol and tobacco are still at risk factors. Other factors may influence the development of head and neck carcinoma. Surgery is the main treatment option, and the addition of radiotherapy following surgery is frequent for patients in the early stages of the disease. Other therapies target specific genetic molecular components connected to tumor development. Disease preventive measures include smoking cessation, limiting alcohol intake, preventing exposure to tobacco smoke and environmental carcinogenic agents, early detection of infection by HPV, maintaining oral health, good eating habits, and managing stress.

The spectrum of head and neck lesions vary from region to region. Ours is a single centre-based study which reflects specific patient population reporting to our hospital and not community as a whole.

## Conclusion

Additional research is needed on a large population for a more thorough understanding of the development of head and neck carcinomas and to shed light on new ways to improve therapeutic approaches and interventions.

## References

1. Prabhash K, Babu G, Chaturvedi P, Kuriakose M, Birur P, Anand AK, Kaushal A, Mahajan A, Syiemlieh J etc. Indian clinical practice consensus guidelines for the management of squamous cell carcinoma of head and neck. Indian J Cancer 2020 ;57, Suppl S1:1-5
2. GLOBOCAN 2012 (IARC) Section of Cancer Surveillance. Available from: [http://globocan.iarc.fr/Pages/fact\\_sheets\\_population.aspx](http://globocan.iarc.fr/Pages/fact_sheets_population.aspx). [Last accessed on 2016 Jun 23].
3. Tuljapurkar V, Dhar H, Mishra A, Chakraborti S, Chaturvedi P, Pai PS. The Indian scenario of head and neck oncology - Challenging the dogmas. South Asian J Cancer 2016;5:105-10.
4. Suryawanshi KH, Damle RP, Dravid NV, Tayde Y. Spectrum of FNAC in palpable head and neck lesions in a tertiary care hospital in India-A 3 years study. IJPO. 2015;2:7-13.

5. Kanu OO, Nnnoli MA, Asoegwu CA. Prevalence of head and neck tumors in Calabar, South Eastern Nigeria. *Asian J Med Sciences*. 2016;7:123-6
6. Lingen MW. Head and Neck. In: Kumar V, Abbas AK, Aster JC eds. *Robbins and Cotran Pathologic Basis of Disease: Elsevier India*. 2014;727-48.
7. Popat V, Vora D, Shah H. Clinico-pathological correlation of neck lesions- A study of 103 cases. *Internet J Head Neck Surgery*. 2009;4(2).
8. Amit MU, Patel HL, Parmar BH. Study of cytodiagnosis of head and neck neoplastic lesions and comparison with histopathology. *Int J Head Neck Surg*. 2013;4:119-22.
9. Adisa AO, Adeyemi BF, Oluwasola AO, Kolude B. Clinico-pathological profile of head and neck malignancies at University College Hospital, Ibadan, Nigeria. *Head Face Med*. 2011;7:
10. Nanik J, Rathore H, Pachori G, Bansod P, Ratnawat K. Cytomorphology of head and neck lesions: A study in tertiary care hospital. *Panacea J Med Science*. 2015;5:145-9.
11. Patel JA, Shah FG, Kothari JM, Patel KD. Prevalence of head and neck cancers in Ahmedabad, Guajrat. *Indian J Otolaryngol Head Neck Surg*. 2009;61:4-10.
12. Rajbhandari M, Dhakal P, Shrestha S, Sharma S, Shrestha B, Pokharel M, et al. The correlation between fine needle aspiration cytology and histopathology of head and neck lesions in Kathmandu University Hospital. *Kathmandu Univ Med J*. 2013;44:296-9.
13. Lei F, Chen PH, Chen JY, Wang WC, Lin LM, Huang HC. Retrospective study of biopsied head and neck lesions in a cohort of referral Taiwanese patients. *Head& Face Medicine*. 2014;10:28.
14. Urooj A, Mirza T, Ali A, Agha MA, Rasool S. Frequency of head and neck lesions according to histopathologic diagnosis. *J Dow Univ Health Sciences Karachi*. 2011;5:70-3
15. Kosam S, Kujur P. Pattern of oral cavity lesion: A retrospective study of 350 cases. *Int J Sci Stud*. 2016;4:65-9.