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Clinicopathological Pattern of Head and Neck malignancy in Tripura- An institutional study

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A B S T R A C T

Background : Due to the widespread use of tobacco in India Head and Neck cancer (HNC) cases are on the rise and it account for 30% of all cancer cases, based on geographical locations usage patterns of tobacco. Despite being more common in males, research has shown that there are variations based on anatomical subsites.
Aim: The aim of the present study is to evaluate clinical presentation of Head and Neck malignancy among patients attending Agartala Government Medical College and their histopathological attributes would be analysed.
Methods and Materials: This is a hospital based prospective observational study of 96 cases consecutive biopsy proven HNC patients from a large comprehensive Tertiary care centre from Tripura during the period of September 2021 to 2022 December. Data collected for the study included age, gender, site of the disease, use of tobacco and histopathological characteristics. The categorical data were analysed by a chi square test using SPSS (version 22).
Results: In the present study, 42.7% of Head and Neck cancers were found in the age of 51-60 years with strong male preponderance (78%) compared to females (22%). Mostly patients were from rural (65%) backgrounds. The most common type of carcinoma is Squamous Cell Carcinoma (88%) and most common subsite involved are Supraglottis (21.9%). There is a strong and significant association found between use of tobacco and Head and Neck malignancies.
Conclusion: Most of Head and Neck malignancies are Squamous Cell Carcinoma and supraglottis and oral cavity were commonly involved. Commonly affected the age group of 40-60 years with male predominance. Strong correlations were observed between tobacco use and Head and Neck malignancy.

Keywords: Neoplasm, Head and Neck malignancy, Squamous Cell Carcinoma.

INTRODUCTION

Head and neck malignancies encompass a broad group of cancers that arise within the upper aerodigestive tract. These cancers are primarily attributed to lifestyle factors and represent a growing public health concern in India, accounting for nearly 30% of all malignancies nationwide. This group includes cancers of the oral cavity, nasopharynx, hypopharynx, larynx, thyroid, salivary glands, and sinonasal regions, with squamous cell carcinoma (SCC) making up over 90% of cases. Key etiological contributors include smoking and the use of smokeless tobacco. The incidence of head and neck cancers is rising rapidly across India, though treatment and patient care practices vary by region.

According to ICMR data, northeastern states such as Assam, Manipur, Mizoram, Tripura, and Nagaland report higher rates than the national average. For example, in Mizoram, cancers of the lower pharynx (11.5 per 100,000) and tongue (7.6 per 100,000) are particularly prevalent, while in Puducherry, oral cancer rates among men are estimated between 7.8–8.9 per 100,000. Notably, Nagaland shows the highest prevalence of nasopharyngeal cancer. Environmental exposures like wood

dust, woodworking, and consumption of smoked seafood have been implicated in its etiology, especially in certain Asian populations.

Additionally, Human Papillomavirus (HPV) infection has emerged as a significant risk factor for aerodigestive tract malignancies. Variability in HPV prevalence—7.1% in India compared to 21.4% in Eastern Europe—may be due to demographic and behavioral differences. Although Tripura has a relatively high and gradually increasing burden of head and neck malignancies, there remains limited published data on this issue. Therefore, this study aims to estimate the burden and analyze the clinicopathological characteristics of head and neck cancers in Tripura.

MATERIALS and METHODS

This hospital-based, descriptive observational study was carried out in the Department of Otorhinolaryngology at AGMC & GBP Hospital, Tripura, between June 1, 2021, and May 31, 2022. All patients who either attended the ENT outpatient department or were hospitalized with a suspected or confirmed diagnosis of head and neck cancer during this period were included. Data collection covered socio-demographic details, presenting symptoms, location of the primary lesion, histological findings, and TNM staging. The collected data were compiled using Microsoft Excel and statistically analyzed with SPSS software version 22.0. Summary statistics were applied to represent the distribution of variables.

RESULTS

The study included 103 patients diagnosed with head and neck malignancies. A notable male predominance was observed, with a male-to-female ratio of 3.6:1 (79 males and 24 females). The age group most commonly affected was 51–60 years, comprising 40.8% of the cases, followed by those aged 61–70 years (27.2%) and 41–50 years (16.5%). The youngest patient was 24 years old, while the oldest was 82, with an overall mean age of 58.3 years. Most patients (77.7%) were residents of rural regions and a significant proportion (65%) came from lower socioeconomic backgrounds.

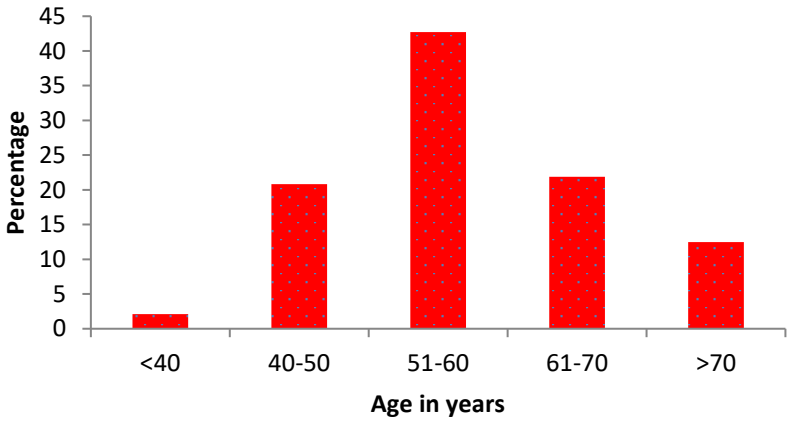

Chart 1: Age-wise Stratification of Head and Neck Cancer Cases.

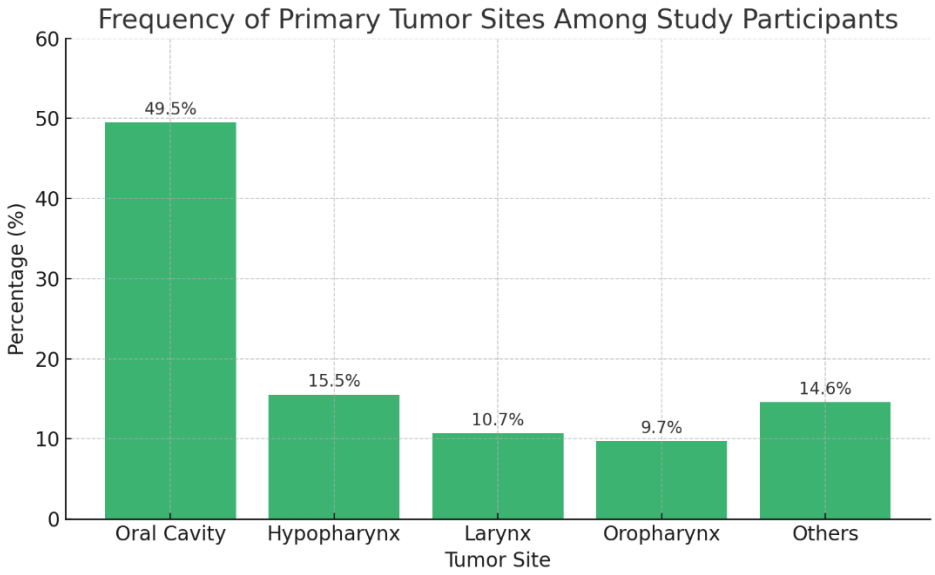

Chart 2: Frequency of Primary Tumor Sites Among Study Participants

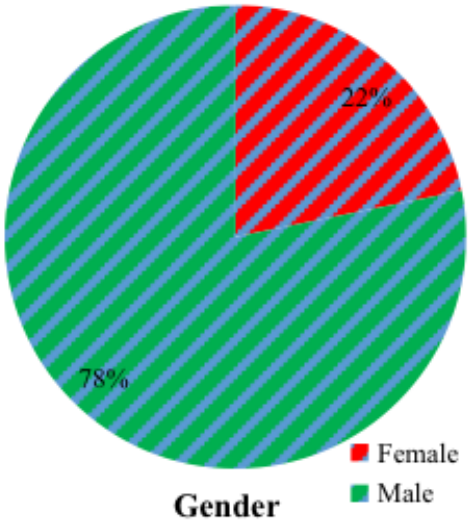

Chart 3: Pie chart showing gender distribution of cases of Head and Neck Malignancy cases.

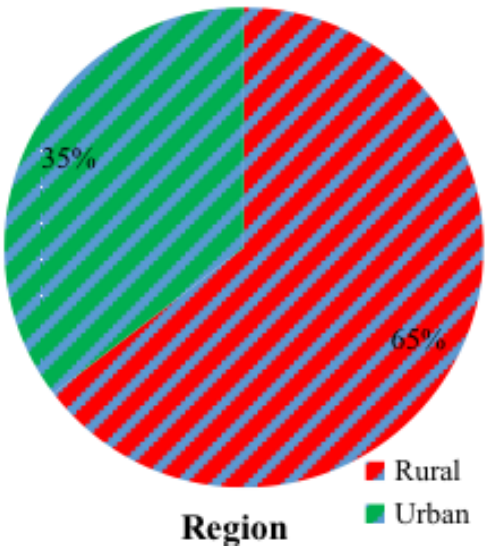

Chart 4: Pie chart showing geographical distribution of patients

It was observed that 89(92.7%) patients were histologically proven Squamous Cell Carcinoma and 4.2% were Adenocarcinoma (Chart 4).

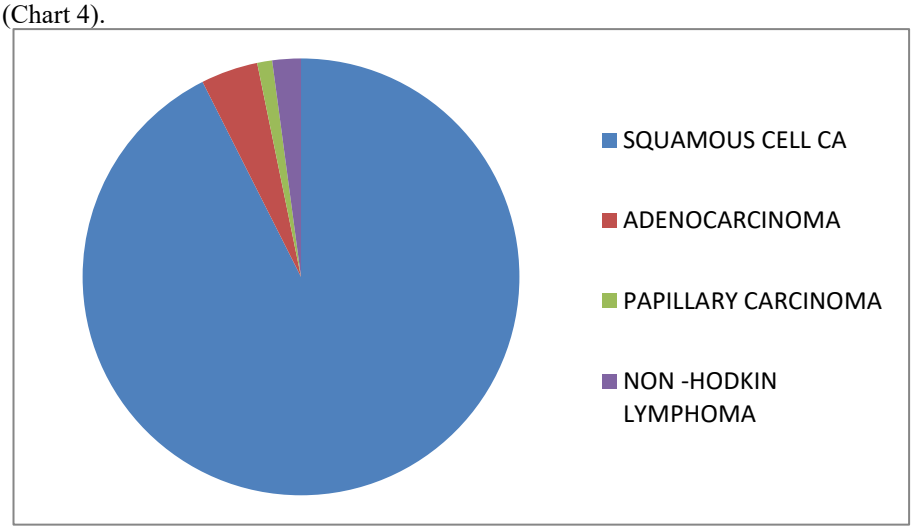

Chart 5: Pie chart showing Histopathological sub types of cases.

In the present study, we have found that 22.9% patients were Carcinoma Supraglottis followed by Carcinoma Buccal mucosa, Carcinoma Base of tongue, Carcinoma Pyriform sinus and Carcinoma of vocal cords with 21.8%, 13%, 8.3%, 6.25% respectively (Chart 5).

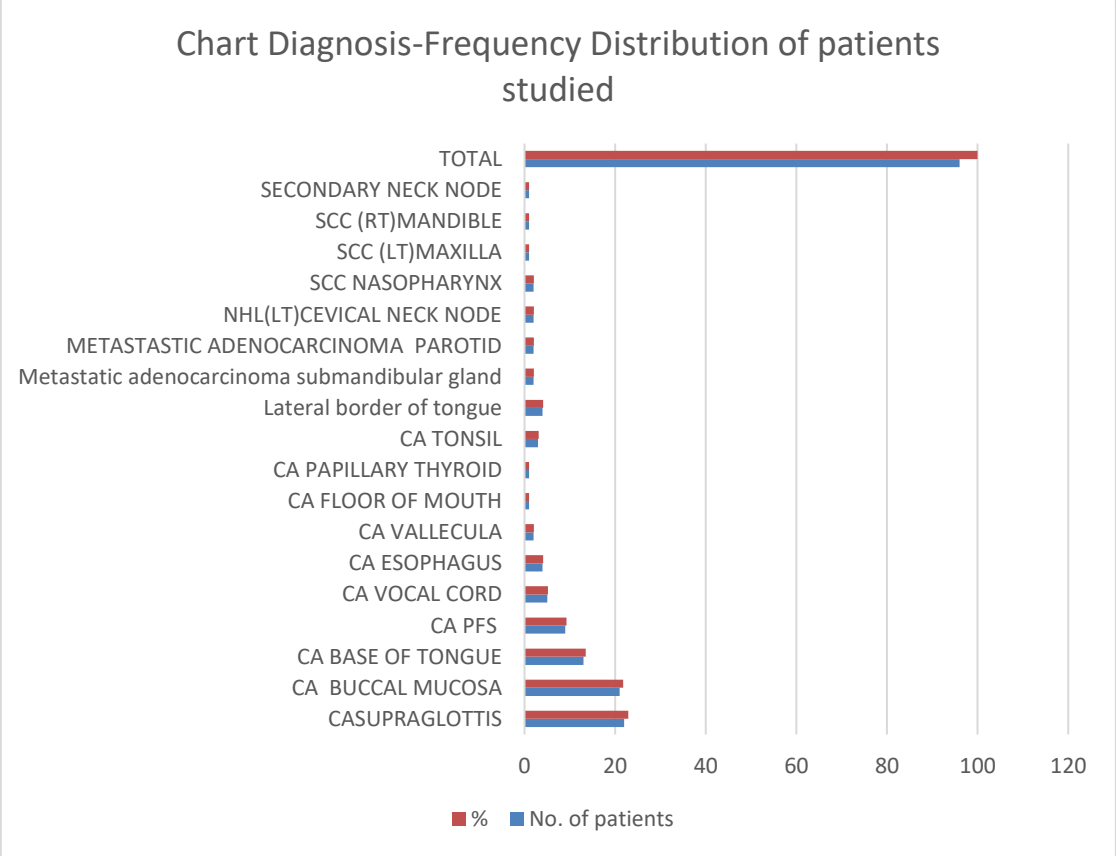

Chart 6: Distribution of cases of Head and Neck malignancy as per subsites.

There were history of substance uses amongst all patients out of which was 26(27.1%) were Bidi smoker and 26(27.1%) were cigarette smoker 25% patients were alcoholics. Amongst smokeless tobacco pan chewing was commonest form seen

in 13.5% patients and it was more common in female patients Most of the patients presented with long duration of substance abuse (25-30 years) (Table 1).

Table 1: Association of clinical variables with gender of patients studied

Variables	Gender		Total (n=96)	P value
	Female(n=21)	Male(n=75)		
Habits of substance use				
Bidi smoking	5(23.8%)	21(28%)	26(27.1%)	0.0000004276
Cigarette smoking	3(14.2%)	23(30.6%)	26(27.1%)	
Alcohol	1(4.7%)	23(30.6%)	24(25%)	
Pan chewing	10(47.1%)	3(4%)	13(13.5%)	
Gutkha chewing	0(0%)	5(6.7%)	5(5.2%)	
Jorda chewing	2(22.2%)	0(0%)	2(2.1%)	

DISCUSSION

The findings of this study revealed a significant male predominance among head and neck cancer cases, with most patients originating from rural communities and having limited socioeconomic resources. These patterns align closely with previous observations reported by Nayak et al. and Bhattacharjee et al. A considerable proportion of patients were diagnosed at an advanced stage, indicating delayed presentation or limited access to early screening. The mean age of patients was 58.3 years, with the majority being over 50 years old, which is consistent with findings from studies conducted by Dandapat et al. and Kulkarni et al.

In this cohort, the oral cavity was the most frequently affected anatomical region, accounting for 49.5% of all cases, followed by hypopharynx (15.5%), larynx (10.7%), and oropharynx (9.7%). These site-specific trends were also noted in previous regional studies by Bhattacharjee et al. and Kulkarni et al., suggesting a persistent pattern across different populations in India.

CONCLUSION

Head and neck cancers remain among the most prevalent forms of malignancy in this region, with the oral cavity identified as the leading site of involvement. The majority of patients presented at a late clinical stage, often associated with unfavorable prognosis, and many came from rural and socioeconomically disadvantaged backgrounds. Enhanced awareness through public health education, timely detection, and efficient referral systems to specialized centers are essential to improve patient outcomes and reduce the disease burden.

Ethical committee: Approved
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Conflict of interest: None.

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