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Research Article

CLINICOPATHOLOGICAL PROFILE OF HEAD AND NECK CANCERS IN A TERTIARY CARE CENTRE OF JAMMU AND KASHMIR: A PROSPECTIVE OBSERVATIONAL STUDY

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Abstract: ***Introduction:*** Head and neck cancers (HNCs) constitute a major public health problem worldwide and represent one of the commonest malignancies in India. The epidemiological profile of these cancers varies considerably across different geographical regions owing to differences in environmental exposures, dietary practices, lifestyle habits, and socioeconomic factors. Kashmir possesses several unique cultural and environmental characteristics that may influence the clinicopathological spectrum of HNC. However, comprehensive regional data describing the demographic, clinical, and pathological characteristics of these malignancies remain limited. **Objective:** To evaluate the clinicopathological characteristics of patients diagnosed with head and neck cancers presenting to a tertiary care centre in Jammu and Kashmir. **Methods:** A prospective observational study was conducted in the Departments of Radiation Oncology and Otorhinolaryngology at Government Medical College Srinagar over an 18-month period (July 2024–January 2026). A total of 170 histopathologically confirmed cases of primary head and neck malignancies were enrolled. Demographic details, clinical presentation, risk factors, tumour characteristics, TNM stage, histopathological findings, and surgical pathological parameters were recorded using a standardized proforma. Statistical analysis was performed using R Studio. Continuous variables were summarized using descriptive statistics, whereas categorical variables were expressed as frequencies and percentages. Chi-square test and Fisher's exact test were applied where appropriate, and a p-value <0.05 was considered statistically significant. **Results**: Among the 170 patients included, the mean age was 57.15 ± 14.67 years, with the highest proportion belonging to the 60–69-year age group (31.8%). Males predominated with a male-to-female ratio of 3.25:1. Laryngeal carcinoma was the most common primary tumour site, followed by oral cavity malignancies. Most patients presented with locally advanced disease (Stage III–IV). Tobacco use, particularly smoking, represented the predominant risk factor. Squamous cell carcinoma was the principal histopathological subtype, with well-differentiated tumours being the most frequent. Cervical nodal metastasis was common among advanced-stage tumours, while lymphovascular and perineural invasion were frequently observed in surgically managed patients. These findings demonstrate a distinctive regional clinicopathological pattern characterized by predominance of laryngeal cancers and late-stage presentation. **Conclusion:** Head and neck cancers in Kashmir predominantly affect older males and are strongly associated with tobacco-related risk factors. The high prevalence of advanced-stage disease at presentation highlights the urgent need for community awareness, early detection programmes, and timely referral pathways. The predominance of laryngeal malignancies observed in this study differs from many other Indian regions, emphasizing the influence of unique regional environmental and lifestyle factors. These findings provide valuable regional epidemiological evidence that may guide preventive strategies, resource allocation, and future multicentre research.

Keywords: Head and neck cancer; Laryngeal carcinoma; Squamous cell carcinoma; Clinicopathological profile; Tobacco; TNM staging; Radiation oncology

INTRODUCTION

Head and neck cancers (HNCs) comprise a heterogeneous group of malignancies arising from the mucosal epithelium of the oral cavity, pharynx, larynx, nasal cavity, paranasal sinuses, salivary glands, and other adjacent structures. Together, they constitute the sixth most common cancer worldwide and remain a major cause of cancer-related morbidity and mortality, particularly in developing countries[1–5].

According to the Global Cancer Observatory (GLOBOCAN 2020), the global cancer burden continues to rise, with India projected to report more than two million new cancer cases annually by 2040[1-3]. Head and neck cancers account for nearly one-third of all malignancies in India[4,5], making them one of the country's most significant public health challenges. Population-based cancer registries have demonstrated considerable regional variation in disease incidence, reflecting differences in socioeconomic status, lifestyle, environmental exposures, and tobacco consumption patterns[6–9].

Histologically, more than 90% of head and neck malignancies are squamous cell carcinomas (SCC), while adenocarcinoma, adenoid cystic carcinoma, mucoepidermoid carcinoma, lymphoma, and other rare tumors constitute a small proportion[10]. Tumour differentiation, cervical nodal involvement, lymphovascular invasion, perineural invasion, and TNM stage are well-established prognostic factors that significantly influence treatment selection and survival. Tobacco remains the single most important preventable risk factor for HNC[11]. Both smoked and smokeless tobacco products, including cigarettes, bidis, hookah, gutka, khaini, and naswar, substantially increase the risk of malignancy. Alcohol consumption independently contributes to carcinogenesis and acts synergistically with tobacco, increasing the risk of head and neck cancer by nearly fifteen-fold among dual users[12]. In addition, oncogenic viruses such as human papillomavirus (HPV) and Epstein–Barr virus (EBV) play an important etiological role in oropharyngeal and nasopharyngeal carcinomas, respectively[5]. Apart from these established risk factors, poor oral hygiene, chronic mucosal irritation, nutritional deficiencies, occupational exposures, and environmental pollutants have also been implicated in the development of HNC[11]. Their relative contribution varies considerably across different geographical regions depending upon local cultural and lifestyle practices.

Jammu and Kashmir represents a unique epidemiological setting where distinct environmental and cultural factors may influence the clinicopathological characteristics of head and neck cancers. Traditional practices such as hookah smoking, consumption of Noon Chai (salted alkaline tea), smoked meat, and sun-dried vegetables, together with exposure to combustion products from the traditional Kangri, have been suggested as potential contributors to carcinogenesis within the upper aerodigestive tract[12,13]. Consequently, the anatomical distribution of head and neck cancers in Kashmir may differ from that reported in other parts of India. Despite advances in diagnostic techniques and multimodality treatment, the majority of Indian patients continue to present with Stage III or Stage IV disease[14–18], resulting in poorer survival and increased treatment-related morbidity. Early diagnosis remains the most effective strategy for improving prognosis and reducing disease burden.

Although national cancer registries provide valuable epidemiological information, comprehensive prospective studies describing the clinicopathological profile of head and neck cancers in Jammu and Kashmir remain limited. Considering the unique demographic, environmental, and cultural characteristics of this region, the present study was undertaken to evaluate the demographic distribution, primary tumour sites, clinicopathological features, histological spectrum, and stage at presentation among patients with head and neck cancers attending a tertiary care centre in Kashmir.

AIMS AND OBJECTIVES

Aim: To assess the clinico-pathological characteristics of patients with various head and neck cancers presenting to our tertiary care center SMHS hospital.

Objectives:

- To identify the most common site of malignancy in head and neck presenting to our institution.
- To assess the stage of malignancy at presentation to our institution.

MATERIALS AND METHODS

Study Design and Setting: This prospective observational study was conducted in the Department of Radiation Oncology, Government Medical College (GMC), Srinagar, in collaboration with the Department of Otorhinolaryngology–Head and Neck Surgery. The study was carried out over a period of 18 months from July 2024 to January 2026, with the objective of evaluating the clinicopathological profile of patients diagnosed with head and neck cancers.

Study Population: The study included patients presenting to the Departments of Radiation Oncology and Otorhinolaryngology with histopathologically confirmed primary head and neck malignancies during the study period. A total of 170 consecutive patients fulfilling the eligibility criteria were enrolled after obtaining written informed consent.

Inclusion Criteria

Patients were included if they fulfilled the following criteria:

- Histopathologically confirmed primary head and neck malignancy.
- Primary tumour arising from the oral cavity, pharynx, larynx, nasal cavity, paranasal sinuses, salivary glands, ear, or thyroid gland.
- Patients registered in the Department of Radiation Oncology during the study period.
- Patients willing to participate and provide written informed consent.

Exclusion Criteria

The following patients were excluded from the study:

- Metastatic malignancies involving the head and neck from another primary site.
- Previously treated or recurrent head and neck cancers.
- Primary brain tumours.
- Malignancies involving the scalp, skin, eye, or cervical oesophagus.
- Patients unable to provide reliable clinical information because of psychiatric illness.
- Patients unwilling to participate in the study.

Study Methodology

After obtaining approval from the Institutional Ethics Committee, eligible patients were recruited consecutively during the study period. Written informed consent was obtained prior to enrolment, following which a dedicated radiotherapy registration number and patient file were generated. A structured proforma was used for data collection. Detailed demographic information, presenting complaints, duration of symptoms, personal habits including tobacco and alcohol use, family history of malignancy, and associated comorbidities were recorded. Each patient underwent a comprehensive clinical examination, including complete otorhinolaryngological and head and neck evaluation. Routine laboratory investigations, including complete blood count (CBC), liver function tests (LFT), and kidney function tests (KFT), were performed. Radiological assessment for diagnosis and staging included contrast-enhanced computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography-computed tomography (PET-CT), whenever clinically indicated. Histopathological examination of biopsy or surgical specimens was performed in all patients to confirm the diagnosis. Immunohistochemistry (IHC) was reviewed whenever required for tumour characterization. Tumour-related variables including the primary anatomical site, histological subtype, tumour differentiation, TNM stage, cervical nodal status, lymphovascular invasion (LVI), perineural invasion (PNI), and pathological stage were recorded. Surgical details and postoperative histopathological findings were documented for patients who underwent definitive surgery.

The primary outcome was the clinicopathological profile of head and neck cancers, including demographic characteristics, anatomical distribution, clinical presentation, tumour stage, histopathological diagnosis, tumour differentiation, and pathological prognostic factors.

Statistical Analysis: Data were entered and analysed using R Studio statistical software. Continuous variables were summarized as mean ± standard deviation (SD) or median with range, as appropriate. Categorical variables were expressed as frequencies and percentages. Associations between categorical variables were analysed using the Chi-square test or Fisher's exact test wherever appropriate. A p-value <0.05 was considered statistically significant. Results were presented using appropriate tables and graphical illustrations.

RESULTS

Table 1: Baseline demographic characteristics of the study population (n = 170)

Variable	Category	Value
Age in Years	Mean age	57.15 ± 14.67
	Median age	60
	Age range	7–90
	Most common age group	60–69 years (31.8%)
Gender	Male	130 (76.5%)
	Female	40 (23.5%)
	Male:Female ratio	3.25:1

A total of 170 patients with histopathologically confirmed head and neck cancers were included in the study. The mean age of the study population was 57.15 ± 14.67 years (range: 7–90 years), with a median age of 60 years. Most patients belonged to the 60–69-year age group (31.8%), followed by the 50–59-year age group (25.3%). Males constituted 76.5% of the study population, yielding a male-to-female ratio of 3.25:1.

Table 2: Distribution of primary tumour sites and Clinical Staging at Presentation and Histopathological Diagnosis of Patients with Head and Neck Cancer (n = 170)

Parameter	Category	No. of Patients	Percentage
Primary tumour sites	Carcinoma Larynx	68	40.00%
	Carcinoma Oral Cavity	37	21.76%
	Carcinoma Salivary Gland	22	12.94%
	Carcinoma Hypopharynx	18	10.59%
	Carcinoma Nasopharynx	18	10.59%
	Sinonasal Carcinoma	3	1.76%
	Carcinoma Thyroid	3	1.76%
	Carcinoma Oropharynx	1	0.59%
	Total	170	100.00%
Clinical staging	Stage I	14	8.24%

	Stage II	50	29.41%
	Stage III	37	21.76%
	Stage IV	69	40.59%
	Total	170	100.00%
Histopathological Diagnosis	Squamous cell carcinoma	143	84.11
	Mucoepidermoid carcinoma	12	7.06
	Adenoid cystic carcinoma	5	2.94
	Carcinoma thyroid*	3	1.76
	Adenocarcinoma	2	1.18
	Salivary duct carcinoma	2	1.18
	Synovial sarcoma	1	0.59
	Myoepithelial carcinoma	1	0.59
	Non-Hodgkin lymphoma	1	0.59
	Total	**170**	**100.00**

*Includes papillary, medullary, and anaplastic thyroid carcinoma.

As shown above, laryngeal carcinoma was the most common primary tumour site, accounting for 68 (40.00%) of the 170 patients. Oral cavity carcinoma was the second most frequent malignancy, observed in 37 (21.76%) patients. Carcinomas of the salivary gland, hypopharynx, and nasopharynx accounted for 22 (12.94%), 18 (10.59%), and 18 (10.59%) cases, respectively. Sinonasal carcinoma and thyroid carcinoma were relatively uncommon, each comprising 3 (1.76%) cases, while oropharyngeal carcinoma was the least frequent, with 1 (0.59%) case.

The majority of patients presented with Stage IV disease, accounting for 69 (40.59%) cases, followed by Stage II in 50 (29.41%) patients and Stage III in 37 (21.76%) patients. Only 14 (8.24%) patients were diagnosed at Stage I.
Squamous cell carcinoma was the predominant histopathological diagnosis, accounting for 143 (84.11%) of all head and neck malignancies. Among the non-squamous malignancies, mucoepidermoid carcinoma was the most frequent (12; 7.06%), followed by adenoid cystic carcinoma (5; 2.94%). Thyroid carcinomas collectively constituted 3 (1.76%) cases, while adenocarcinoma and salivary duct carcinoma each accounted for 2 (1.18%) cases. Synovial sarcoma, myoepithelial carcinoma, and non-Hodgkin lymphoma were rare, with one case each (0.59%).

Table 3: Pathological Prognostic Factors Among Surgically Treated Patients (n = 51)

Pathological Variable	Category	No. of Patients	Percentage (%)
Pathological Tumour Stage (pT)	pT1	7	13.73
	pT2	16	31.37
	pT3	17	33.33
	pT4	11	21.57
Pathological Nodal Stage (pN)	pN0	24	47.06
	pN1	8	15.69
	pN2	17	33.33
	pN3	2	3.92
Lymphovascular Invasion (LVI)	Present	19	37.25
	Absent	32	62.75
Perineural Invasion (PNI)	Present	15	29.41
	Absent	36	70.59

Among the 51 patients who underwent definitive surgical treatment, pT3 tumours were the most common pathological tumour stage, observed in 17 (33.33%) patients, followed closely by pT2 tumours (16; 31.37%). Pathological nodal examination demonstrated pN0 status in 24 (47.06%) patients, whereas 27 (52.94%) had pathological lymph node metastasis, with pN2 disease accounting for 17 (33.33%) cases. Lymphovascular invasion (LVI) was identified in 19 (37.25%) patients, while perineural invasion (PNI) was present in 15 (29.41%) patients. These adverse pathological features indicate a substantial burden of biologically aggressive disease among surgically managed patients and underscore the need for appropriate postoperative risk stratification and adjuvant therapy.

Table 4: Distribution of Primary Tumour Sites According to Gender (n = 170)

Primary Tumour Site	Male n(%)	Female n(%)	Total n(%)
Larynx	64 (94.1)	4 (5.9)	68 (40.0)
Oral cavity	22 (59.5)	15 (40.5)	37 (21.7)
Salivary gland	13 (59.1)	9 (40.9)	22 (12.9)

Hypopharynx	16 (88.9)	2 (11.1)	18 (10.6)
Nasopharynx	12 (66.7)	6 (33.3)	18 (10.6)
Sinonasal	1 (33.3)	2 (66.7)	3 (1.8)
Thyroid	1 (33.3)	2 (66.7)	3 (1.8)
Oropharynx	1 (100.0)	0	1 (0.6)
Total	**130**	**40**	**170 (100.0)**

As shown in Table 4, males predominated across almost all primary tumour sites. Laryngeal carcinoma demonstrated the greatest male predominance, with 64 (94.1%) of the 68 cases occurring in males, followed by hypopharyngeal carcinoma, where 16 (88.9%) of 18 patients were male. Oral cavity carcinoma and salivary gland malignancies also showed a male predominance, accounting for 22 (59.5%) and 13 (59.1%) male patients, respectively. Nasopharyngeal carcinoma occurred more frequently in males (66.7%), whereas sinonasal and thyroid carcinomas were relatively more common among females, each with 2 (66.7%) female patients. The single case of oropharyngeal carcinoma occurred in a male patient. Overall, the findings indicate a marked male predominance in the study cohort, particularly for laryngeal and hypopharyngeal cancers, while thyroid and sinonasal malignancies showed a relatively higher representation among females.

Table 5: Distribution of Nodal Status According to Primary Tumour Site (n = 170)

Primary Tumour Site	**N0 n(%)**	**N+ n(%)**	**Total n(%)**
Larynx	40 (58.8)	28 (41.2)	68 (40.0)
Oral cavity	17 (45.9)	20 (54.1)	37 (21.8)
Salivary gland	14 (63.6)	8 (36.4)	22 (12.9)
Hypopharynx	2 (11.1)	16 (88.9)	18 (10.6)
Nasopharynx	1 (5.6)	17 (94.4)	18 (10.6)
Sinonasal	0 (0.0)	3 (100.0)	3 (1.8)
Thyroid	0 (0.0)	3 (100.0)	3 (1.8)
Oropharynx	0 (0.0)	1 (100.0)	1 (0.6)
Total	**74**	**96**	**170**

As shown above, 96 (56.5%) of the 170 patients presented with cervical lymph node metastasis (N+), whereas 74 (43.5%) had no clinical evidence of nodal involvement (N0). Nasopharyngeal carcinoma demonstrated the highest rate of nodal metastasis, with 17 (94.4%) of 18 patients presenting with positive cervical lymph nodes, closely followed by hypopharyngeal carcinoma, where 16 (88.9%) of 18 patients were node-positive. All patients with sinonasal carcinoma, thyroid carcinoma, and the single case of oropharyngeal carcinoma presented with nodal metastasis. In contrast, salivary gland malignancies showed the lowest frequency of nodal involvement, with 14 (63.6%) of 22 patients remaining node-negative at presentation. Among patients with laryngeal carcinoma, 40 (58.8%) were node-negative, whereas 28 (41.2%) had nodal metastasis. These findings indicate that cervical lymph node involvement was particularly common in hypopharyngeal and nasopharyngeal carcinomas, reflecting their aggressive biological behaviour and tendency for early regional spread.

Table 6: Distribution of Major Risk Habits According to Clinical Stage (n = 170)

Risk habits	**Stage I-II n(%)**	**Stage III-IV n(%)**	**Total n(%)**
No habits	24 (32.9)	49 (67.1)	73 (42.9)
Smoking only	27 (30.3)	62 (69.7)	89 (52.4)
Smokeless tobacco	1 (20.0)	4 (80.0)	5 (2.9)
Smoking + Smokeless tobacco	0 (0.0)	3 (100.0)	3 (1.8)
Total	**52 (30.6)**	**118 (69.4)**	**170 (100.0)**

The majority of patients (118; 69.4%) presented with advanced-stage disease (Stage III–IV), while only 52 (30.6%) were diagnosed at early stages (Stage I–II). Among patients with smoking as the sole risk habit, 62 (69.7%) of 89 presented with Stage III–IV disease. Similarly, 49 (67.1%) of 73 patients with no identifiable risk habits also presented with advanced-stage disease. Patients using smokeless tobacco alone demonstrated a higher proportion of advanced disease, with 4 (80.0%) of 5 patients presenting at Stage III–IV. Notably, all patients (100%) with combined smoking and smokeless

tobacco use were diagnosed with advanced-stage disease. These findings indicate that advanced clinical presentation was common irrespective of risk habit profile, although the highest proportion of late-stage disease was observed among patients with combined tobacco exposure.

DISCUSSION

The present study evaluated the clinicopathological profile of 170 patients with histopathologically confirmed head and neck cancers presenting to a tertiary care centre in Jammu and Kashmir. The mean age of the study population was 57.15 ± 14.67 years, with a median age of 60 years, and the highest proportion of patients belonged to the 60–69-year age group. These findings indicate that head and neck cancers predominantly affect older adults, which is consistent with the cumulative effects of prolonged exposure to carcinogenic agents such as tobacco, alcohol, environmental pollutants, and dietary risk factors.

The age distribution observed in the present study is comparable to that reported by Marur et al.[19], who described head and neck squamous cell carcinoma as a disease primarily affecting individuals in the fifth to seventh decades of life because of prolonged carcinogenic exposure. Similarly, Koul et al.[20], in a study from SKIMS, Srinagar, reported the highest incidence of head and neck cancers among patients aged 50–60 years, closely resembling the age profile observed in the present study. These findings suggest that the epidemiology of head and neck cancers in Kashmir largely parallels global and regional trends.

However, an important finding in the present study was that 15.9% of patients were younger than 45 years, including isolated paediatric and adolescent cases. Although this constituted a relatively small proportion of the cohort, it highlights the emerging occurrence of head and neck cancers in younger individuals. Similar observations have been reported by Chaturvedi et al.[21], who suggested that younger patients may develop head and neck malignancies through mechanisms distinct from traditional tobacco-related carcinogenesis, including viral oncogenesis, genetic susceptibility, and environmental exposures. The presence of younger patients in the current study underscores the need for future molecular and genetic studies in the Kashmiri population to better understand these alternative pathogenic pathways.

A marked male predominance was observed in the present study, with males accounting for 76.5% of all patients and a male-to-female ratio of 3.25:1. This finding is in agreement with the observations of Gupta et al.[22], who also reported a significant male predominance among patients with head and neck cancers. The higher incidence among males is generally attributed to greater exposure to tobacco smoking, occupational hazards, and other lifestyle-related risk factors. Despite this overall male predominance, the present study demonstrated interesting site-specific gender variations. Laryngeal carcinoma showed an overwhelming male predominance, whereas oral cavity and salivary gland malignancies exhibited a comparatively higher

proportion of female patients. Similar gender-related differences have been described by Subramanian et al.[23], who proposed that factors such as nutritional deficiencies, poor oral hygiene, passive smoking, and indoor environmental exposures may contribute to the relatively higher burden of oral cavity cancers among women.

One of the most important findings of the present study was the predominance of laryngeal carcinoma, which accounted for 40.0% of all head and neck malignancies, followed by oral cavity carcinoma (21.8%), salivary gland carcinoma (12.9%), hypopharyngeal carcinoma (10.6%), and nasopharyngeal carcinoma (10.6%). This pattern differs considerably from that reported in many regions of India, where oral cavity cancers usually constitute the largest proportion of head and neck malignancies owing to the widespread use of smokeless tobacco.

The predominance of laryngeal carcinoma observed in the present study appears to reflect the unique epidemiological characteristics of Kashmir. Koul et al.[24] described the role of the traditional Kangri, a portable charcoal fire pot used during winter, as an important regional environmental carcinogen. Chronic inhalation of smoke and volatile combustion products generated by the Kangri has been implicated in the increased incidence of upper aerodigestive tract malignancies, particularly laryngeal and hypopharyngeal cancers. Similarly, Mishra et al.[25] demonstrated that chronic exposure to biomass fuel smoke and indoor air pollution significantly increases the risk of laryngeal carcinoma, especially among populations exposed to poorly ventilated indoor environments.

Another regional factor likely contributing to the observed tumour distribution is the traditional consumption of Noon Chai (salted alkaline tea), often consumed at very high temperatures. Previous studies have suggested that repeated thermal injury to the upper aerodigestive tract mucosa, combined with dietary nitrosamines and other carcinogens, may contribute to the development of hypopharyngeal and upper aerodigestive tract cancers[26]. These unique regional exposures may explain why laryngeal carcinoma predominated in the present cohort, contrasting with reports from other Indian populations where oral cavity cancers are more frequent.

Furthermore, the relatively high proportion of nasopharyngeal carcinoma (10.6%) observed in the present study may reflect the contribution of viral and

genetic factors, particularly Epstein–Barr virus (EBV) infection, which has been extensively implicated in the pathogenesis of nasopharyngeal carcinoma[5,21]. The distinct anatomical distribution identified in the present study therefore highlights the importance of considering regional environmental, cultural, and biological factors when evaluating the epidemiology of head and neck cancers in Kashmir.

CONCLUSION

The present prospective observational study provides a comprehensive overview of the clinicopathological profile of head and neck cancers in patients presenting to a tertiary care centre in Jammu and Kashmir. The study demonstrates that head and neck cancers predominantly affect older adults, with a marked male predominance, and that laryngeal carcinoma is the most common primary tumour site in this region, followed by oral cavity carcinoma. This pattern differs from that reported in many other parts of India, suggesting the influence of unique regional environmental and lifestyle factors.

The majority of patients presented with advanced-stage disease (Stage III–IV), indicating delayed diagnosis and emphasizing the need for greater public awareness, early detection programmes, and improved referral pathways. Tobacco use, particularly smoking, remained the principal modifiable risk factor, while combined tobacco exposure was associated with a higher proportion of advanced-stage disease. Histopathologically, squamous cell carcinoma was the predominant tumour type, and a substantial proportion of surgically treated patients exhibited adverse pathological features, including cervical nodal metastasis, lymphovascular invasion, and perineural invasion, reflecting aggressive tumour biology.

The findings of this study highlight the importance of region-specific epidemiological data in understanding the burden and behaviour of head and neck cancers in Kashmir. They underscore the need for comprehensive tobacco control measures, community-based awareness programmes, early screening of high-risk populations, and timely multidisciplinary management to improve treatment outcomes. Furthermore, the distinctive clinicopathological pattern observed in this study provides valuable baseline data for future multicentre research and may contribute to the development of tailored preventive and therapeutic strategies for head and neck cancers in the region.

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