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ORIGINAL ARTICLE

Clinicopathological Profile of Head Neck Cancer in A Tertiary Care Hospital

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ABSTRACT

Background: *Cancers of the head and neck represent a significant worldwide health concern, primarily impacting men above 50 years old, with tobacco, alcohol, and betel chewing being major risk contributors. The most prevalent variety is squamous cell carcinoma, whereas lymphomas and sarcomas occur with less regularity. This study examines clinicopathological characteristics to enhance diagnosis and treatment.* ***Methods:*** *This retrospective analysis at Bangladesh Medical University (July 2023–June 2025) involved 80 patients diagnosed with head and neck cancer. Information regarding demographics, risk factors, tumor location, histology, and stage was gathered from medical records and evaluated using SPSS v26. Approval for ethical considerations was secured, and confidentiality was upheld.* ***Results:*** *The majority of patients were men (71.2%) within the age range of 51–60 years (33.8%). The frequent risk factors were smoking (53.8%) and the use of smokeless tobacco (48.8%). The most common tumor location was the oral cavity (36.2%), where squamous cell carcinoma was the most prevalent (83.8%). The majority of cases were shown at later stages (Stage III–IV, 75%).* ***Conclusion:*** *Cancers of the head and neck primarily impact middle-aged males, frequently affect the oral cavity, are typically squamous cell carcinoma, and often appear at advanced stages, highlighting the importance of early diagnosis.*

Keywords*: Head Neck Cancer, Clinicopathological Profile, Tertiary Care Hospital.*

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INTRODUCTION

Head and neck cancers are a major global public health concern and a significant cause of morbidity and mortality, often impairing vital functions such as breathing, swallowing, speech, hearing, vision, taste, and smell [1,2,3]. It ranks as the seventh most prevalent cancer globally and includes epithelial tumors that develop in the nasal cavity, paranasal sinuses, oral cavity, pharynx, and larynx [4,5].

Around 644,000 fresh instances of head and neck cancer are identified globally each year, with roughly two-thirds happening in developing nations [6]. It happens mainly in men aged 50 to 60 years and older. Nonetheless, the rarity of other tumor types restricts epidemiological research and complicates the clear definition of clinical profiles, prognosis, and ideal treatment [7]. The primary risk factors are tobacco smoking and drinking alcohol, which work together [8]. The widespread habit of chewing pan and betel leaf with tobacco contributes to a high incidence of tongue and buccal mucosa cancers. The outcome of oral squamous cell carcinoma (OSCC) is determined by the original tumor location, lymph node involvement, thickness of the tumor, status of surgical margins, and stage of the disease (pTNM) [9,10]. Various histological tumor types occur in the head and neck region. 70–90% are epithelial, with squamous cell carcinoma (SCC) accounting for 66.7% of carcinomas and 47.8% of all head and neck cancers. Lymphomas represent the second most common malignancy (~30%), while 15–20% of sarcomas are also diagnosed in this region [11,12,13]. Studies report that well-differentiated tumors are common and tumor site (e.g., buccal mucosa, oral cavity) correlates with histological features and grade [14]. Biomarkers like p16 (representing HPV), EGFR, and p53 exhibit diverse expression in HNSCC and are under assessment for their prognostic and therapeutic significance; for instance, EGFR overexpression frequently occurs and is associated with worse prognosis [15]. HPV-positive oropharyngeal cancers are a unique clinicopathological group with varying epidemiological and prognostic features when compared to HPV-negative tumors [16].

In Bangladesh, hypopharyngeal carcinoma predominantly affects men, tobacco use is common, squamous cell carcinoma (92%) is the main histology, and the pyriform fossa is the most frequent primary site [17]. Laryngeal carcinoma primarily impacts men, is located supraglottically, shows changes in voice, and frequently presents as moderately differentiated and at an advanced stage [18].

In Bangladesh, extensive information on head and neck cancers covering all locations and histology's is scarce. This study intends to examine their clinicopathological characteristics in a tertiary care hospital, covering demographics, tumor location, histology, and stage, to enhance diagnosis and treatment.

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METHODS & MATERIALS

This retrospective descriptive study was conducted at Bangladesh Medical University, a tertiary care hospital in Dhaka, Bangladesh, to assess the clinicopathological profile of patients with head and neck cancer. The study covered a period from July 2023 to June 2025, and data were collected retrospectively from hospital records, pathology reports, and patient case files. A total of 80 patients with histopathologically confirmed head and neck cancer were included in the study using a purposive sampling technique. Patients with complete medical records during the study period were included, whereas cases with incomplete records, benign tumors, or recurrent malignancies were excluded. Relevant information such as age, sex, risk factors (smoking, smokeless tobacco use, betel nut chewing, alcohol consumption), primary tumor site, histopathological type, and clinical stage of the disease were extracted using a structured data collection form. The collected data were checked for completeness and entered into Statistical Package for the Social Sciences (SPSS) version 26 for analysis. Descriptive statistics including frequency, percentage, mean, and standard deviation were calculated and presented in tables. Ethical approval for the study was obtained from the Institutional Review Board of Bangladesh Medical University, and confidentiality of patient information was strictly maintained throughout the study.

RESULTS

Table I shows the age distribution of the study participants The majority of the patients belonged to the 51–60 years age group (27, 33.8%), followed by 41–50 years (17, 21.2%) and 61–70 years (16, 20.0%). A smaller proportion of patients were aged ≤40 years (11, 13.8%), while 9 (11.2%) patients were older than 70 years. The mean age of the patients was 54.6 ± 11.4 years.

Table – I: Age distribution of the study patients (*n* = 80)

Age group (years)	Frequency (n)	Percentage (%)
≤40	11	13.8
41–50	17	21.2
51–60	27	33.8
61–70	16	20.0
>70	9	11.2
Total	80	100

Figure 1 shows sex distribution of the study patients. Male patients constituted the majority with 57 (71.2%) cases, whereas 23 (28.8%) were female, resulting in a male to female ratio of approximately 2.5:1.

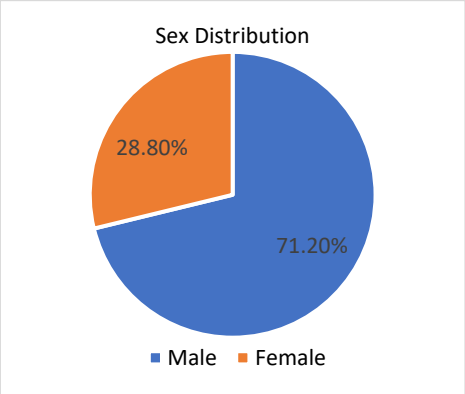

Figure – 1: Sex distribution of the patients (*n* = 80)

Table II presents the distribution of different risk factors among the patients. Smoking was the most common risk factor and was present in 43 (53.8%) patients. This was followed by smokeless tobacco use in 39 (48.8%) patients and betel nut chewing in 31 (38.8%) patients. Alcohol consumption was reported by 9 (11.2%) patients, while 11 (13.8%) patients had no identifiable risk factor.

Table – II: Distribution of risk factors among the patients (*n* = 80)

Risk factor	Frequency (n)	Percentage (%)
Smoking	43	53.8
Smokeless tobacco	39	48.8
Betel nut chewing	31	38.8
Alcohol consumption	9	11.2
No identifiable risk factor	11	13.8

Table III shows the distribution of primary tumor sites. The oral cavity was the most commonly affected site, accounting for 29 (36.2%) cases. This was followed by the larynx in 19 (23.8%) patients and the oropharynx in 13 (16.2%) patients. Hypopharyngeal cancer was found in 9 (11.2%) patients, whereas nasopharyngeal cancer was observed in 6 (7.5%) patients. Other sites were identified in 4 (5.0%) patients.

Table – III: Distribution of primary tumor site (*n* = 80)

Primary site	Frequency (n)	Percentage (%)
Oral cavity	29	36.2
Larynx	19	23.8
Oropharynx	13	16.2
Hypopharynx	9	11.2
Nasopharynx	6	7.5
Others	4	5.0
Total	80	100

Table IV presents the histopathological types of tumors. Squamous cell carcinoma was the predominant type, observed in 67 (83.8%) patients. Adenocarcinoma accounted for 7 (8.8%) cases, while mucoepidermoid carcinoma was found in 4 (5.0%) patients. Other histological types were detected in 2 (2.4%) patients.

Table – IV: Histopathological type of tumor (n = 80)

Histopathology	Frequency (n)	Percentage (%)
Squamous cell carcinoma	67	83.8
Adenocarcinoma	7	8.8
Mucoepidermoid carcinoma	4	5.0
Others	2	2.4
Total	80	100

Table V shows the clinical staging of the disease at presentation. Most patients presented at Stage IV (34, 42.5%), followed by Stage III (26, 32.5%). Stage II disease was observed in 13 (16.2%) patients, whereas only 7 (8.8%) patients were diagnosed at Stage I, indicating that the majority of cases presented in advanced stages of the disease.

Table – V: Clinical stage of the disease (*n* = 80)

Stage	Frequency (n)	Percentage (%)
Stage I	7	8.8
Stage II	13	16.2
Stage III	26	32.5
Stage IV	34	42.5
Total	80	100

DISCUSSION

In our study, most patients were aged 51–60 years, indicating that head and neck cancers are most common in the middle-aged and older adult population. This age pattern is consistent with the Western Uttar Pradesh study, which found the highest incidence of head and neck cancers in the 40–60-year age group, with more than 60 % of cases occurring within this range [19]. In our study, males were the majority, representing 71.2% of the cases, with a male-to-female ratio of roughly 2.5:1. This corresponds with worldwide and regional statistics indicating that head and neck cancers are more prevalent in men, primarily because of greater exposure to risk factors like tobacco, alcohol, and betel nut [20].

The most prevalent risk factors were smoking and smokeless tobacco use, with betel nut chewing also occurring frequently. Alcohol was infrequent and had no discernible risk factor. These results correspond with South Asian research indicating that tobacco—whether smoked or chewed—is the primary cause of head and neck cancers [21].

In our study, the oral cavity was the most common tumor site, followed by others. Epidemiological research indicates that around 40% of head and neck cancers arise in the oral cavity, highlighting local practices like tobacco use and alcohol intake, which can elevate oral cancer risk by two to three times [22].

Squamous cell carcinoma was the most common tumor type (83.8%), primarily moderately differentiated, with well-differentiated variants following. This corresponds with regional findings indicating that SCC originates from the epithelium of the upper aerodigestive tract, with analogous differentiation trends observed throughout India [23].

A majority of patients exhibited advanced disease, indicating a postponed diagnosis. Delays may lead to clinical upstaging and a poorer prognosis, as indicated by Kowalski & Carvalho, who found that treatment delays heightened the risk of advancing to more severe stages and decreased survival rates [24].

Overall, head and neck cancers in our group primarily impacted middle-aged men, were mainly oral cavity squamous cell carcinomas, and appeared at advanced stages, underscoring the importance of early detection and risk factor reduction.

CONCLUSION

In this study, head and neck cancers primarily impacted middle-aged men, with tobacco consumption being the primary risk element. The most frequent location was the oral cavity, with squamous cell carcinoma being the main histological type. The majority of patients arrived at advanced stages, emphasizing the necessity for early identification, public education, and focused prevention measures to enhance results.

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