

Pattern of Clinicopathological Features of Head and Neck Cancer Patients in a Tertiary Level Specialized Hospital in Dhaka, Bangladesh

Masud MRI¹, Khan MR², Bhuiyan MJT³, Tuly BN⁴, Pathan MSI⁵

Abstract

A cross-sectional, descriptive study was conducted to see the pattern of clinicopathological features of head and neck cancer patients in a tertiary level hospital. The study was conducted between January and April of 2017 in National Institute of Cancer Research & Hospital (NICRH), Dhaka, Bangladesh. Data was collected from a total number of 69 histopathologically and clinically confirmed patients. A male predominance (2.14:1) was noted except for oral cavity cancer (1:1). Mean age for males and females were (56.15±11.47) years and (54.50±7.16) years respectively. Positive history of associated factors like smoking (60.34%), betel nut and betel leaf (81.36%), smokeless tobacco (56.90%) was prevalent among majority of the participants except for alcohol (6.90%). Smoking was prevalent only among males. Knowledge regarding the role of associated factors was very poor, e.g., smoking (10.61%), betel nut & leaf (7.58%), smokeless tobacco (6.06%), alcohol (7.58%) for causing cancer. 10.71% patients gave positive family history of cancer (1st degree relative). 27.59% patients gave history of treatment by homeopathy/traditional healers. The most common sites of cancer in males were larynx (27.3%) followed by oral cavity (20.5%). In case of female patients, most common sites were oral cavity (40.9%) followed by larynx (22.7%). Most common histopathological type was squamous cell carcinoma (91.94%). Lymph node metastasis were present in 47.62% patients, whereas only 1.56% patients had distant metastasis and 3.13% had recurrent/residual disease. 18.64% patients gave history of definitive surgery. To conclude, most of the patients usually reported with advanced stages of cancer; however, preventable factors were found among all of them. Unfortunately, they had very poor knowledge about those preventable factors which warrants an immediate and elaborate public health program to fill up this vast gap of knowledge. Prevention and early diagnosis should be main arsenal to combat head and neck cancer.

CBMJ 2022 July: vol. 11 no. 02 P: 108-113

Keywords: Head and neck cancer, cancer epidemiology, preventable factors, Bangladesh

Introduction

Head and neck cancers are malignant neoplasms occurring in the nasal cavities, paranasal sinuses, nasopharynx, hypopharynx, oropharynx, ear, oral cavity, and salivary glands.¹ These malignancies are associated with various etiological factors such as tobacco and alcohol use, infection by oncogenic viruses, genetic factors and nutritional deficiency.² Head and neck cancer is the sixth most common cancer in the world and is an important cause of morbidity and mortality.^{3,4} Several histological types of tumors are found in the head and neck region. Between 70% to 90% of head and neck cancers are epithelial in origin, and squamous cell carcinoma constitutes 66.7% of carcinomas and 47.8% of all head and neck cancers.⁵ About 30% of all lymphomas

occur in this region and they comprise the second most common primary malignancy in the head and neck region.⁶ About 5% of all sarcomas are diagnosed in the head and neck region.⁷

1. Dr. Md. Rakibul Islam Masud, Radiotherapist, Department of Radiotherapy, Mymensingh Medical College Hospital, Mymensingh.
2. Dr. Mojibur Rahman Khan, Assistant Professor & Head, Department of Radiotherapy, Mymensingh Medical College Hospital, Mymensingh.
3. Dr. Md. Jahin Tareq Bhuiyan, Medical Officer, Department of Otolaryngology- Head & Neck Surgery, Dhaka Medical College Hospital, Dhaka.
4. Dr. Badrun Nahar Tuly, Medical Officer, Department of Oncology, Delta Hospital Limited, Mirpur, Dhaka.
5. Dr. Mohammad Saiful Islam Pathan, Resident Physician, Department of Radiotherapy, Mymensingh Medical College Hospital, Mymensingh.

Address of Correspondence:

Email: dmch.k.65@gmail.com
Phone: 01754260797

Osteogenic sarcoma, rhabdomyosarcoma, malignant fibrous histiocytoma and angiosarcoma are the most common histological types.⁸ Salivary gland malignancies constitute about 1% of all head and neck cancer.²

The prospects of head and neck cancer depends on histological type, degree of histological differentiation of the tumor cells, clinical staging, primary site of tumor, age of patient, co-morbid conditions, and neuro-vascular invasion.⁹ Unfortunately, there is no data on this topic in our country. Hence, the purpose of this study was to estimate the clinicopathological profiles of head and neck malignancies in a tertiary level hospital in Dhaka, Bangladesh.

Methods

This cross-sectional, descriptive study was conducted in the outpatient department (OPD) of Radiation Oncology, National Institute of Cancer Research and Hospital (NICRH), Dhaka, Bangladesh, between January and April of 2017. The study population was all the patients of head & neck cancer reported to the NICRH. However, a purposive sampling technique was adopted. Finally, a total of 69 patients were selected, who were clinically and histopathologically confirmed head and neck cancer patients, who came to the Department of Radiation Oncology for treatment and gave written informed consent to fill up the questionnaire and the checklist. A pretested semi-structured questionnaire and a checklist were used as data collection tools. The methods were face to face interview and review of clinical and pathological records. All interviewed questionnaires and checklists were reviewed for their completeness, accuracy, and consistency to exclude missing or inconsistent data. The data were analyzed by using SPSS version 23.0 for windows. The analyzed data was presented in

tables, graphs, charts, and bars. The study was approved by the Ethics Review Committee of National Institute of Cancer Research and Hospital (NICRH), Dhaka, Bangladesh.

Results

Total 69 patients were selected during our study period. The mean age of the participants was (55.62±10.266) years. Most of the participants (44.9%) were in the (50-59) years age group. Mean age for males and females were (56.15±11.47) years and (54.50± 7.16) years respectively (Table-I). Now if we distribute the participants by sex, we find out that 68.1% were male and 31.9% were female. Male to female ratio was 2.14:1 (Fig. 1). 94.2% of our participants were Muslim, 4.3% were Hindu and 1.4% were Christian (Table-II). Occupation of the participants were as follows: agriculture (33.3%), housewife (31.7%), business (20.6%), service (14.3%) (Table-II). 28.1% were illiterate, 22.8% can sign only, 21.1% completed primary level, 8.8% can read and write despite having no formal education, 8.8% completed class 8, 5.3% completed S.S.C, 3.5% completed H.S.C and only 1.8% studied beyond H.S.C (Fig. 2). About 60.34% of respondents were smokers and 39.66% were non-smokers. About 81.36% of the respondents had the habit of betel nut and betel leaf chewing (Table-IV). We have tried to analyze the knowledge regarding associated factors of head and neck cancer. In this study, only 10.61% knew that smoking causes head and neck cancer (Table-V). Primary site of cancer included oral cavity in 27.3% cases, followed by larynx (25.8%) (Table-VI) Lymph node metastasis were found in 47.62%, while distant metastasis in 1.56% cases. Recurrent or residual status were found in 3.13%, and history of surgical operation in 18.64% cases (Table-VII). Histopathology of the respondents

was mostly squamous cell carcinoma (91.94%) (Fig. 3). Grading of cancer of the respondents was as follows: Grade-I (33.93%), Grade-II (42.86%), Grade-III (16.07%) (Fig. 4).

Table-I: Distribution of the participants by age

Age Group (in years)	Frequency	Percentage
20 – 29	2	2.9
30 – 39	1	1.4
40 – 49	9	13.0
50 – 59	31	44.9
60 - 69	19	27.5
70 - 79	6	8.7
80+	1	1.4
Total	69	100.0

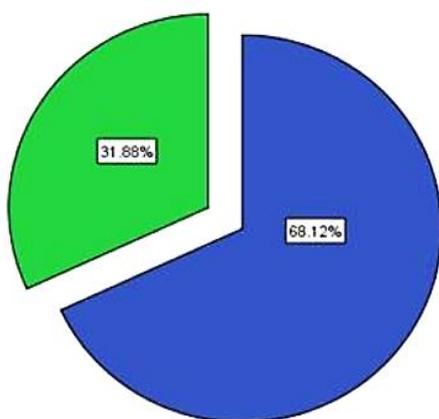


Fig. 1: Distribution of the respondents by sex (blue=male, green=female)

Table-II: Distribution of the participants by religion

Religion	Frequency	Percentage
Muslim	65	94.2
Hindu	3	4.3
Christian	1	1.4
Total	69	100.0

Table-III: Distribution of the participants by occupation

Occupation	Percentage
Agriculture	33.3
Service	14.3
Business	20.6
Housewife	31.7
Total	100.0

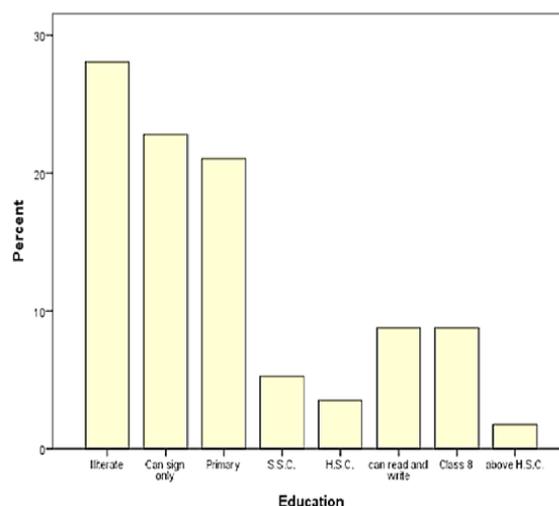


Fig. 2: Distribution of the respondents by level of education

Table-IV: Presence of associated factors among the respondents

Associated factors	Percentage
Smoking	60.34
Betel nut and betel leaf chewing	81.36
Smokeless tobacco	56.90
Alcohol	6.90
Family history (1st degree relative)	10.17
Treatment by homeopathy/ traditional healers/ herbal medicine	27.59

Table-V: Knowledge regarding associated factors among the respondents

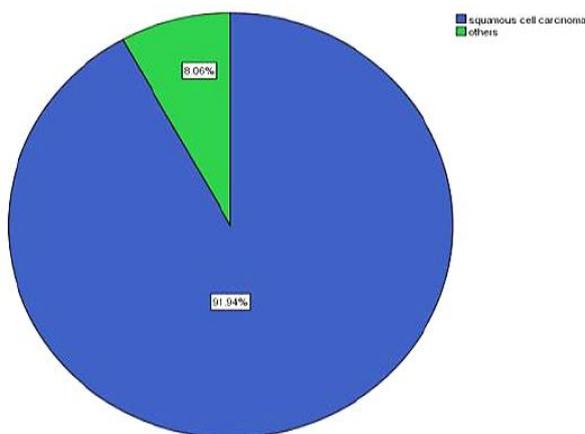
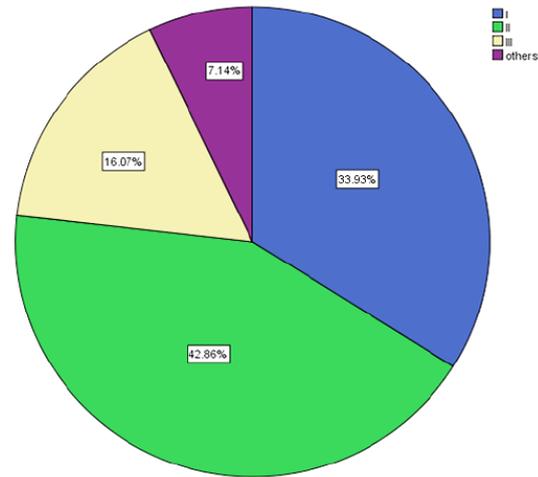
Topic of Knowledge	Percentage
Smoking and cancer	10.61
Betel nut and betel leaf chewing and cancer	7.58
Smokeless tobacco and cancer	6.06
Alcohol and cancer	7.58

Table-VI: Distribution of the respondents according to primary sub-site of cancer

Primary site	Percentage
Larynx (supra-glottic)	21.2
Larynx (glottic)	4.5
Nasopharynx	9.1
Oropharynx (Tonsil)	7.6
Oropharynx (Base of the tongue)	7.6
Hypopharynx (Piriform fossa)	12.1
Hypopharynx (Post-cricoid region)	1.5
Hypopharynx (Posterior Pharyngeal wall)	1.5
Oral Cavity (Buccal Mucosa)	15.2
Oral Cavity (Retromolar region)	3.0
Oral Cavity (anterior 2/3rd of Tongue)	9.1
Paranasal Sinus	1.5
Salivary gland (Parotid)	3.0
Double Primary	1.5
Others	1.5

Table-VII: Different attributes of Clinicopathological Profile of the respondents

Variables	Percentage
Lymph node metastasis	47.62%
Distant metastasis	1.56%
Recurrent or residual status	3.13%
History of surgical operation	18.64%

**Fig. 3:** Type of histopathology of the respondents**Fig. 4:** Grading of cancer of the respondents

Discussion

We know that cancer is one of the most important components of current global disease burden. Mortality and morbidity due to cancer are increasing day by day in developing countries like Bangladesh along with the developed ones. Countries like Bangladesh deserve special attention in this perspective. As we know, Bangladesh was once a country of single burden disease, concerned mostly with infectious diseases. However, the disease trends have been changing in last few decades as the incidence of non-communicable disease like cancer is increasing day by day. Head and neck cancers are one of the most prevalent cancers worldwide.^{1,2} Though there is a paucity of data on this topic in our country, we assume from our experience as health care providers that this group of cancer patients constitute a vast majority of the whole disease burden. Clinicopathological profile has an immense role in clinical evaluation and policy making for this group of cancer patients.

In this study, the mean age of the respondents was 55.62 ± 10.266 years and most of the patients were in the age group of (50-59) years. This result is similar to the report of Beyzadeoglu *et al.*²

Male to female ratio was 2.14:1, except for cancer of oral cavity (1:1) which has equal distribution among both males and females. Our data resembles the data reported by DeVita *et al.*⁷ In this study, 28.1% of the participants were illiterate which closely correlates with the current literacy rate of our country.¹⁰

In our study, we found out 60.34% of the participants were smokers and 39.66% were non-smokers. The rate of smoking was found out (16.48±10.60) sticks per day. The total lifetime period of smoking was found out (33.80±15.37) years. In case of betel nut and betel leaf, about 81.36% of the respondents had the habit of betel nut and betel leaf chewing. Total lifetime period of betel nut and betel leaf chewing was found (28.21±17.89) years. This result corresponds to the study done by Ahmed *et al.*¹¹ All the female cancer patients gave history of betel nut and betel leaf chewing. This difference in the habit of tobacco intake may reflect our socioeconomic condition and taboo about female smokers.

If we look at the case of smokeless tobacco, e.g., jorda, gul, shada pata (all are made from the tobacco leaves), about 48.8% male respondents gave history of use of smokeless tobacco, whereas about 80% female respondents gave similar history. Now if we focus on the use of alcohol, only 6.90% of the respondents gave history of taking alcohol. All of them were males. This result may reflect the social and religious taboo regarding alcohol in our country.

We also tried to analyse patients' knowledge of associated factors in head and neck cancer. It was very poor: knowledge regarding smoking (10.61%), betel nut and leaf (7.58%), smokeless tobacco (6.06%) and alcohol (7.58%). This result is even worse than the study conducted by

Khawaja *et al.*¹² Only 10.17% of the respondents gave positive family history, which is expected as per a previous study done by Huyang *et al.*¹³

We found the primary sites for head and neck cancers as follows: oral cavity (27.3%), larynx (25.8%), oropharynx (15.2%), hypopharynx (15.2%), nasopharynx (9.1%), salivary gland (3%), paranasal sinuses (1.5%), double primary (1.5%), others (1.5%). The most common sites of cancer in males were larynx (27.3%) followed by oral cavity (20.5%). In case of female, most common sites were oral cavity (40.9%) followed by larynx (22.7%). This result is slightly different from the other study done by Addala *et al.*¹⁴

Histopathology of the respondents was mostly squamous cell carcinoma (91.94%) which slightly differs from some previous study done by Ologe *et al.*¹⁵ This may be due to the fact that the study was conducted only on the patients in the radiation oncology department sparing other departments. Hence, haematological malignancies like lymphomas were excluded by default. Only 18.64% gave history of surgical operation, which signifies that most of the patients presented with advanced stages of their illness. Hence, they were inoperable. 47.62% of the respondents had lymph node metastasis, which is lower than that of reported by Beyzadeoglu *et al.*² Distant metastasis is found only in 1.56% which is also lower than the report by Symonds *et al.*¹⁶ Recurrence/residual disease was found only in 3.13%. It is lower than the reported results by Chang *et al.*¹⁷

However, all those information regarding attributes of clinicopathological profile are not conclusive, as it was a cross-sectional study. Long term follow up is required to give final verdict regarding these aspects of clinicopathological profiles.

Conclusion

Head and neck cancer was more common in older age group with a definite male predominance. Education level of the patients was usually poor with a low socio-economic status. Occupation was mainly agriculture for males and females were mostly housewives. Among the associated factors of head and neck cancer, smoking, betel nut and betel leaf chewing, use of smokeless tobacco were significantly prevalent among the patients. However, alcoholism was interestingly uncommon among the patients. Knowledge of the patients regarding these associated factors was almost nonexistent. Positive family history of cancer was found in only few patients. A great number of these patients presented in advanced stage with lymph node metastasis. Most affected sites were larynx and oral cavity. Most common histopathology was squamous cell carcinoma. Distant metastasis and recurrence/residual disease was surprisingly lower may be because of data acquisition mostly at initial presentation without any follow up.

References

1. American Society of Clinical Oncology (ASCO). *Head and Neck Cancer: Statistics*. Retrieved from: www.cancer.net/cancer-types/head-and-neck-cancer/statistics (Accessed on April 11, 2017).
2. Beyzadeoglu M, Ozyigit G, Ebruli C. eds. *Basic Radiation Oncology*. Heidelberg: Springer-Verlag; 2010.
3. Parkin DM, Bray F, Ferlay J, Pisani P. *Global cancer statistics, 2002*. *CA Cancer J Clin*. 2005;55(2):74-108.
4. Jemal A, Siegel R, Ward E, Murray T, Xu J, Thun MJ. *Cancer statistics, 2007*. *CA Cancer J Clin*. 2007;57(1):43-66.
5. Adeyemi BF, Adekunle LV, Kolude BM, Akang EE, Lawoyin JO. *Head and neck cancer – a clinicopathological study in a tertiary care center*. *J Natl Med Assoc*. 2008;100(6):690-7.
6. Dubey SP, Sengupta SK, Kaleh LK, Morewaya JT. *Adult head and neck lymphomas in Papua New Guinea: a retrospective study of 70 cases*. *Aust NZ J Surg*. 1999;69(11):778-81.
7. DeVita Jr. VT, Lawrence TS, Rosenberg SA. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia: Lippincott Williams & Wilkins; 2018.
8. Potter BO, Sturgis EM. *Sarcomas of the head and neck*. *Surg Oncol Clin N Am*. 2003;12(2):379-417.
9. Pivot X, Niyikiza C, Poissonnet G, Dassonville O, Bensadoun RJ, Guardiola E, et al. *Clinical prognostic factors for patients with recurrent head and neck cancer: implications for randomized trials*. *Oncology*. 2001;61(3):197-204.
10. UNESCO Institute of Statistics. *Bangladesh: Education and Literacy – General Information*. Retrieved from: <http://uis.unesco.org/country/bd> (Accessed on April 23, 2017).
11. Ahmed S, Rahman A, Hull S. *Use of betel quid and cigarettes among Bangladeshi patients in an inner-city practice: prevalence and knowledge of health effects*. *Br J Gen Pract*. 1997 Jul;47(420):431-4.
12. Khawaja MRH, Mazahir S, Majeed A, Malik F, Merchant KA, Maqsood M, et al. *Chewing of betel, areca and tobacco: perceptions and knowledge regarding their role in head and neck cancers in an urban squatter settlement in Pakistan*. *Asian Pac J Cancer Prev*. 2006;7(1):95-100.
13. Huang YH, Lee YC, Li Q, Chen CJ, Hsu WL, Lou PJ, et al. *Family History of Cancer and Head and Neck Cancer Risk in a Chinese Population*. *Asian Pac J Cancer Prev*. 2015;16(17):8003-8.
14. Addala L, Pentapati CK, Reddy Thavanati PK, Anjaneyulu V, Sadhnani MD. *Risk factor profiles of head and neck cancer patients of Andhra Pradesh, India*. *Indian J Cancer*. 2012;49(2):215-9.
15. Ologe FE, Adeniji KA, Segun-Busari S. *Clinicopathological study of head and neck cancers in Ilorin, Nigeria*. *Trop Doct*. 2005;35(1):2-4.
16. Symonds R, Mills JA, Duxbury A. eds. *Walter and Miller's Textbook of Radiotherapy: Radiation Physics, Therapy and Oncology*. 8th ed. London: Elsevier; 2019.
17. Chang JH, Wu CC, Yuan KS, Wu ATH, Wu SY. *Locoregionally recurrent head and neck squamous cell carcinoma: incidence, survival, prognostic factors, and treatment outcomes*. *Oncotarget*. 2017;8(33):55600-12.