

Head and Neck Squamous Cell Carcinoma a5-year Experience at a Tertiary Care Hospital in Bahawalpur

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Background: Squamous cell carcinoma is the commonest head and neck malignancy which accounts for approximately 20% of the cancer burden in Asian countries. Major risk factors include tobacco smoking thus a rendering it a preventable disease. Frequencies and incidence rates of site-specific head and neck squamous cell carcinoma have been reported regularly in different studies from various parts of the country. Current study aims at contributing the similar data from Bahawalpur region.

Methods: It was a descriptive study including 184 biopsy proven cases of squamous cell carcinoma from head and neck region reported by Department of Pathology, Quaid-e-Azam Medical College Bahawalpur during January 2008 and December 2012. Data was acquired from hospital and lab records and analysed using SPSS version 18.

Results: Mean age of the patients was 55.76 ± 7.21 (median: 50) years. Male to female ratio was almost 2:1. History of smoking was positive in 72.28% of patients. The most common affected sites in order of frequency were larynx (n=79, 42.93%), hypopharynx (n=36, 19.56%), oral cavity (n=29, 15.76%), face/skin (n=24, 13.04%), lips (n=10, 5.43%) and tongue (n=6, 3.26%). More than a half of the tumours were histologically classified as well-differentiated squamous cell carcinomas (n=94, 51.09%).

Conclusions: Head and neck squamous cell carcinoma has a peak age in 6th decade of life and twice common in men as compared to women. Most frequent site of HNSCC in Bahawalpur region is larynx.

Key Words: Head and neck, cancer, squamous cell carcinoma, larynx, pharynx, oral cavity, Bahawalpur

Introduction:

Head and neck cancer is a major health problem worldwide. It is a major global health issue, with about half a million new cases diagnosed per year, and their incidence appears to be increasing in developing countries.² Squamous cell carcinoma is the commonest head and neck malignancy which accounts for approximately 20% of the cancer

burden in Asian countries. Major risk factors include tobacco smoking thus a rendering it a preventable disease. Head and neck cancers, ICD-10 (International Classification of Diseases 10th Revision) categories C00-C14 (cancer of the lip, oral cavity and pharynx) and C32 (larynx) are categorized amongst the top ten malignancies globally. Head and neck cancers are grouped together with the justification of similar natural history, epidemiology, risk factors, morphology, and control measures.³ HNC comprise of soft tissue neoplasms of oral cavity including lips, nasal cavity and paranasal sinuses (PNS), pharynx, larynx and salivary glands.⁴ More than 5% of all malignant tumors worldwide are head and neck cancer, with more than 100,000 cases diagnosed in Europe each year.⁵

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The risk increases in proportion to the intensity and duration of the exposure to each carcinogen. Yet, individual susceptibilities to these risk factors vary within the general population. The basis for this susceptibility may be inborn or acquired, which is still under investigation. Head and neck cancers are mainly seen in the low socioeconomic strata.(.)

Many factors that are implicated for its causation are consumption of tobacco in its various forms, alcohol, smoking habits, lack of awareness, and lack of proper nutrition.⁶ The etiology of head and neck squamous cell cancer is multifactorial with alcohol and tobacco consumption considered to be the main risk factor. Other factors include irradiation, oncogenic virus infections like Epstein Barr virus (EBV) and Human Papilloma Virus (HPV). EBV is commonly associated with nasopharyngeal carcinoma and HPV has been associated with laryngeal carcinoma.^{3,7}

The incidence of head and neck cancer increases with age, especially after 50 years of age. Although most patients are between 50 and 70 years old, head and neck cancer does occur in younger patients. There are more women and fewer smokers in the younger patient group.⁸ Mean age of presentation lies in the 5th-6th decade for the Asian population as compared to 7th-8th decade among the North American population. Incidence of oral cancer in South-East Asia and of oral cavity plus nasopharyngeal cancer in East Asia follows the global HNC pattern.⁷

In the Western world, squamous cell carcinoma of the head and neck (HNSCC) accounts for more than 90% of all head and neck cancers. The 5-y survival rate of less than 30% is due to a high lymphogenic metastatic tendency, a high recurrence rate, and an increased occurrence of secondary tumors.⁵

The commonest epithelium covering the head

and neck mucosal surfaces is squamous epithelium and this may explain the domination of squamous cell carcinomas.⁹

SCC has a focal invasion and its behavior depends on the region that it originates. Each anatomic area has its own growth patterns and prognosis. Head and neck squamous cell carcinoma (HNSCC) has been had a challenging treatment for a long time because of the high rates of recurrence and its advanced disease at the time of diagnosis.¹⁰ Frequencies and incidence rates of site-specific head and neck squamous cell carcinoma have been reported regularly in different studies from various parts of the country. Current study aims at contributing the similar data from Bahawalpur region.

Methods:

It was a retrospective cross sectional descriptive study. All 184 biopsy proven cases of squamous cell carcinoma from head and neck region reported by Histopathology Section of Department of Pathology, Quaid-e-Azam Medical College Bahawalpur in a period of 5-years i.e. from January 2008 to December 2012 were included in the study. Data about age, gender, exact site of tumour, history of tobacco smoking, histological diagnosis and tumour grade was acquired from hospital and lab records. Data was entered and analysed using SPSS version 18. Means were calculated for quantitative and percentages were drawn for qualitative variables.

Results:

A total of 184 biopsy proven cases of head and neck squamous cell carcinoma were reported at Department of Pathology, Quaid-e-Azam Medical College from January 2008 to December 2012. Mean age of the patients was 55.76 ± 7.21 years ranging from 23 to 85 years. Median age was 50 years. Male to female ratio was almost 2: 1 (126 males: 58 females). Females were affected at little younger age

53.15±6.90 years as compared to their male counterparts (58.33±7.85 years).

Majority of patients were village dwellers (n=141, 76.63%) as shown in Figure 1. History of current active tobacco smoking was positive in a large proportion (n=133, 72.28%) of patients as shown in Figure 2.

The most common affected sites in order of frequency were larynx (n=79, 42.93%), hypopharynx (n=36, 19.56%), oral cavity (n=29, 15.76%), face/skin (n=24, 13.04%), lips (n=10, 5.43%) and tongue (n=6, 3.26%). Just more than a half of the tumours were histologically classified as well-differentiated squamous cell carcinomas (n=94, 51.09%) on the basis of presence of keratin, intercellular bridges and low mitotic activity while other tumours were graded as moderately and poorly differentiated as shown in Table 1.

Discussion:

Head and neck malignancies are common in several regions of the world where tobacco use and alcohol consumption is high. The highest rate of oral cancer is found in the developing world where oral cancer with pharynx combined is the fourth commonest site of cancer.¹ In the Western world, squamous cell carcinoma of the head and neck (HNSCC) accounts for more than 90% of all head and neck cancers.¹¹ Pakistan falls into a high risk head and neck cancer geographical zone, presentation is late and treatment is not optimum.³ Lack of national tumor registry in our country is the main reason for lack of accurate statistical data about prevalence and incidence of cancer.¹²

However, regional and institution-based registry systems from different centers are providing scattered but useful information regarding the prevalence of cancer. Centers like AFIP Rawalpindi, IRNUM Peshawar, PMC Faisalabad, QMC Bahawalpur, D.I. Khan, KEMC Lahore, JPMC Karachi and the well-organized Karachi tumor registry are serving the purpose to a great extent.¹²

Present study focuses on cases of head and neck squamous cell carcinomas in one of the largest tertiary care hospitals in Southern-Punjab.

Majority of the patients suffering from head and neck squamous cell carcinoma belonged to rural areas (>75%). a significant number of patients (>70%) had a known active history of tobacco smoking. Our results were consistent with similar findings all over the world. A research conducted by Basu et al. in India suggested that a tobacco habit was significantly correlated with the incidence of HNSCC and persons with current addiction had a 2.17 fold increased risk of cancer development.¹³ A case-control study conducted in Germany showed that out of 200 patients suffering from HNSCC, 95.5% were having a smoking history.¹⁴

Mean age:

In a research conducted by Abdul-Hamid and colleagues mean age of presentation was found to be 51.3 ± 14.9 years (range: 3 – 82 years). And there was significant difference between the mean age of male (49.5 ± 15.1 years) and female (45.4 ± 16.3 years) patients with head and neck cancers. Abuidris and colleagues conducted a study of 314 head and neck cancer cases in Sudan and found that mean age of presentation was 48.79 and median age of 50 years.⁹ In our study mean age of the patients was 55.76±7.21 years ranging from 23 to 85 years. Median age was 50 years. Another study from Lahore, Pakistan also revealed similar peak age for head and neck malignancy.¹²

Male to female ratio:

The male to female ratio of head and neck cancer in Nairobi was found to be 2:1.⁷ In a study conducted in India the ratio was found to be 2.9:1.⁶ Our study also suggests a similar male to female ratio of almost 2:1.

Discussion about site-wise frequency of head and neck squamous cell carcinoma is as follows;

Larynx:

Our research showed that the most common affected site in order of frequency was larynx (42.3%). In a study of 89 cases of head and neck cancers in a tertiary care hospital in Nigeria found that larynx cancer constituted 4.5% of cancers.¹⁵ However, Aziz et al. from within the country showed larynx as the most frequent site of head and neck cancer, which was histologically squamous cell carcinoma, a finding consistent with our results.¹²

Hypopharynx

In our research second most common site was hypopharynx (19.56%). Siddiqui and colleagues found that in Indian state of Bihar hypopharynx carcinoma was the third most common cancer predominately of squamous cell carcinoma type.⁴ A study conducted in Nepal found that 10.3% of cases were identified as hypopharynx SCC.¹⁵ Our study shows significantly higher incidence of hypopharynx SCC it may be due to the reason that the sample size of research conducted by other colleagues is considerably larger.

Oral cavity & tongue:

In our study frequency of oral cavity tumors were the third most common site (15.76%) and tongue as a site of SCC had only 3.26 % frequency. These results are comparable to an Indian research conducted by Bhattacharjee and colleagues in which 32.67% out of TBM were in tongue region and most of them were of SCC type. Other researches also show oral cavity cancers to be a common site of head and neck squamous cell carcinoma⁽¹⁶⁻²⁰⁾

Another large series of 5865 patients from Gulf region showed that oral cancer was 8th commonest and carcinoma arising in pharynx was 7th commonest malignancy and both tumours were relatively preponderant in males with gender ratios of 1.65:1 and 2:1 respectively.²¹ Thus, our findings regarding head and neck squamous cell carcinoma in general and site-wise frequencies of squamous cell carcinoma along with its peak

age and gender distribution are well incoherence with the published reports from within the country and other Asian countries.

Conclusions:

Head and neck squamous cell carcinoma has a peak age in 6th decade of life and twice common in men as compared to women. Most frequent site of HNSCC in Bahawalpur region is larynx.

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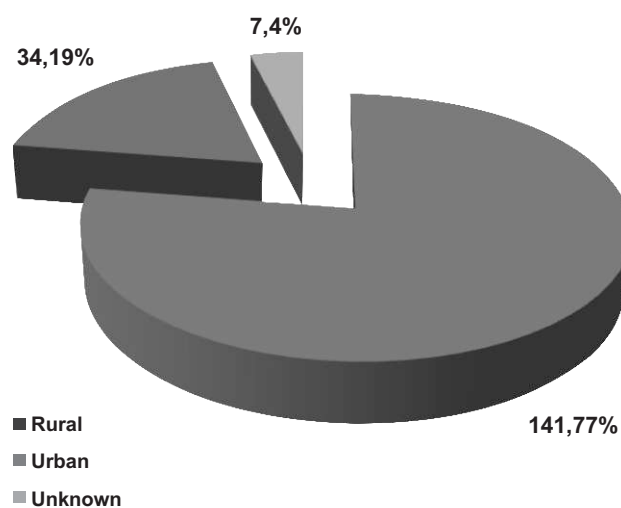


Figure 1. Rural-Urban Distribution of Patients of HNSCC

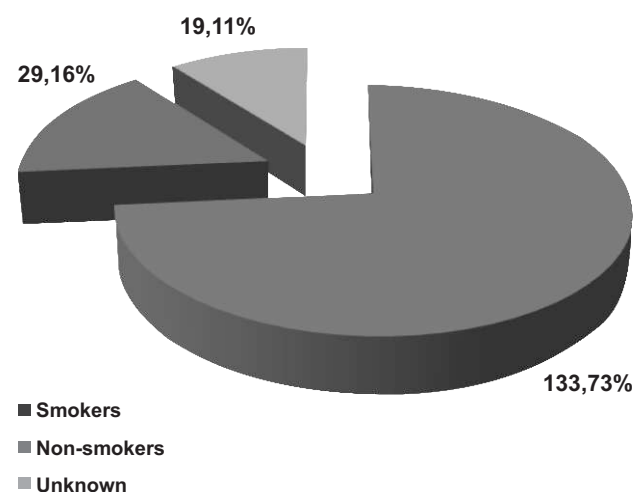


Figure 2. Smoking Status of Patients of HNSCC

Table 1. Histological Grades of HNSCC

Histological Grade	Number of Cases	Percentage
Grade-1	94	51.1%
Grade-2	37	20.1%
Grade-3	49	26.6%
Grade-4	04	2.2%
Total	184	100%