

RESEARCH ARTICLE

Clinicopathological Profile of Head and Neck Cancers in the Western Development Region, Nepal: A 4-Year Snapshot

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Abstract

Regional cancer epidemiology is an important basis for determining the priorities for cancer control in different countries worldwide. There is no reliable information about the pattern of head and neck cancer in western Nepal and hence an attempt was here made to evaluate the situation based on hospital data, which provide the only source in the western region of Nepal. A clinicopathological analysis of head and neck cancers treated between 2003 and 2006 in Manipal Teaching Hospital affiliated to Manipal College of Medical Sciences, Pokhara, Western Development Region, Nepal was performed. A total of 105 head and neck cancer cases were identified with a male to female ratio of 1.8:1. The median ages of male and female patients were 62 and 64 years, respectively. Ninety-seven (92.4%) of the cancer patients were suffering from carcinoma, three (2.9%) had blastoma, three (2.9%) had sarcoma, and two (1.9%) had lymphoma. The majority (61.9%) of carcinoma cases were squamous cell carcinoma followed by anaplastic carcinoma (7.2%). Of the carcinoma cases, the most common site of primary lesion was larynx (19.6%), followed by the thyroid (14.4%), the tongue and hypopharynx with 10.3% cases each. Comparative analysis among males and females did not reveal any sex difference in type of head and neck cancers. The head and neck cancer pattern revealed by the present study provides valuable leads to cancer epidemiology in western Nepal and useful information for health planning and cancer control, and future research in western Nepal.

Keywords: Head and neck cancer - squamous cell carcinoma - clinicopathological profile - Nepal

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Introduction

Population based cancer registries reflect data based on unselected patients with a wide range of natural histories and different management patterns (Jamal et al., 2006). Nevertheless, hospital based cancer registries are an important public health tool that can be used to verify suspected cancer clusters, help physicians to determine the outcome of different cancer treatment modalities, and provide useful information for researchers (Gress, 2002). The pattern of occurrence of various cancers including head and neck cancers varies between races and from one geographical region to another (Tobias, 1994). In the developed world, the incidence of different cancers is derived from population based statistics (Jamal et al.,

2006). However, in most developing countries like Nepal such comprehensive data may not be available (Binu et al., 2007).

Nepal is one of the world's poorest countries in the south-east Asia region. In 2002, Nepal was ranked 140 among 174 countries in the Human Development Index and 0.44 in the gross domestic product (GDP). According to the 2001 census, the total population of Nepal is 23.15 million. The sex ratio (male: female) of Nepal is 998:1000. Nepal is geographically divided into five development regions. Western Development Region (WDR), the catchment area of the Department of Radiotherapy and Oncology at Manipal Teaching Hospital (MTH), is one of the five development regions in Nepal.

Head and neck cancers are not uncommon in several

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regions of the world including the Indian sub-continent (Elango et al., 2006; Yeole, 2007; Basu et al., 2008; Chaudhry et al., 2008). This is the first preliminary report of a study assessing the age and gender profile, histopathological types, and sites of primary lesion of head and neck cancers in the WDR of Nepal. The present study lays the foundation for the monitoring of the future pattern of head and neck malignancies in the WRD of Nepal, and provides a basis for comparison elsewhere.

Materials and Methods

The present clinicopathological retrospective case-series analysis study of head and neck cancers was performed at MTH, a 700-bed tertiary care hospital affiliated to Manipal College of Medical Sciences, Pokhara. The hospital is located in Kaski District of the WDR, Nepal.

Approximately 20% Nepal's population resides in the WDR, and MTH is the only cancer treatment referral centre in the region. The hospital is a referral centre that serves patients from Pokhara city in Kaski district and other remote hilly areas of the WDR of Nepal. Most cancer patients presenting to other hospitals in the region are transferred to MTH. The Department of Radiotherapy and Oncology at MTH became fully functional with full-time consultant staff in 2002.

A review of all patients with head and neck cancers treated during a four year period between January 2003 and December 2006 at MTH was carried out. The case records of these patients were obtained from the Medical Records Department and the following data were attained: demographic profile including age and sex, histopathological diagnosis and site of primary lesion. An attempt was made to eliminate duplicate cases by cross-checking the hospital number and demographic profile of each patient. In addition, the registers maintained in the individual Departments of Radiotherapy and Oncology, Otorhinolaryngology, General Surgery, and General Pathology were further cross-checked. The International Classification of Disease Oncology (ICDO) 9th revision was used to group the sites of the primary lesion. The final data were entered and analyzed using SPSS, version 10.1, statistical analysis programme (SPSS Inc., Chicago, IL, USA).

Results

During 2003-2006, 105 patients with head and neck cancers were admitted to the hospital. The most number of new cases presented in one year were 39 (37.1%) in 2004, and the lowest 15 (14.3%) in 2003 (Table 1). In the present study, more than 90% of patients were residents of the catchment area (WDR) of MTH. About 72% of patients were direct admissions to MTH; other patients were transferred from small rural private hospitals and Government hospitals in the WDR.

Of the 105 patients reviewed over the four-year-period in this study, 68 (64.8%) were males and 37 (35.2%) were females. The male to female ratio was 1.8:1. The mean age for males was 60.85 (Standard Deviation:SD,

Table 1. Year-wise Distribution of Cases

Year	Male		Female		Total	
	n	%	n	%	n	%
2003	10	14.7	5	13.5	15	14.3
2004	25	36.8	14	37.8	39	37.1
2005	15	22.1	6	16.2	21	20
2006	18	26.5	12	32.4	30	28.6
Total	68	100	37	100	105	100

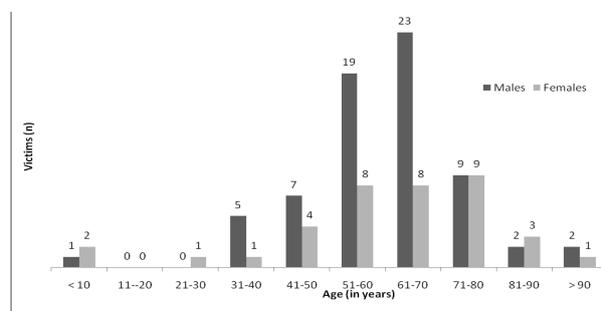


Figure 1. Age and Sex Distribution of Patients

14.53) years, whilst that for females was 60.51 (SD, 19.89) years. The median age was 62 years for males and 64 for females. The youngest male patient was a three-year-old with retinoblastoma of the eye, and the eldest was a 92-year-old with squamous cell carcinoma of the larynx. The youngest female patient was a two-year-old with rhabdomyosarcoma of the orbit, and the eldest was a 92-year-old with anaplastic carcinoma of the thyroid. Age and sex distribution of patients is shown in figure 1.

The elderly in the 6th to 8th decades were the most affected with nearly 73% of the cancer patients. There were no cancer patients in the 2nd and 3rd decades of life in males, and 2nd decade in females. In males, maximum number (n=23, 33.8%) of cancer patients were in the 7th decade, followed by the 6th decade (n=19, 27.9%). In females, maximum number (n=9, 24.3%) of cancer patients were in the 8th decade of life, followed by 6th and 7th decades with 8 (21.6%) cases each.

Ninety-seven (92.4%) of the cancer patients were suffering from carcinoma, three (2.9%) had blastoma, three (2.9%) had sarcoma, and two (1.9%) had lymphoma. Majority (61.9%) of the carcinoma cases were squamous cell carcinoma followed by anaplastic carcinoma (7.2%). Other varieties included follicular carcinoma, papillary carcinoma, mucoepidermoid carcinoma, trichoepithelioma, adenocarcinoma, lymphoepithelioma, medullary carcinoma, malignant lymphoepithelial carcinoma, and malignant melanoma. Fifteen (15.5%) cases were undifferentiated carcinoma. Among sarcomas, one case each of osteosarcoma, epitheloid angiosarcoma, and rhabdomyosarcoma were reported. All the three blastomas were retinoblastoma and both the lymphomas were of non-Hodgkin's type. Comparative analysis among males and females did not reveal any sex difference in type of head and neck cancers. Squamous cell carcinoma was the most common subtype in males and females, followed by undifferentiated carcinoma in males and adenocarcinoma in females.

Of the carcinoma cases, the most common site of

primary lesion was larynx (n=19, 19.6%), followed by the thyroid (n=14, 14.4%), the tongue and hypopharynx with 10 (10.3%) cases each. The other primary sites of carcinoma were oral cavity (n=8, 8.2%), maxilla (n=8, 8.2%), facial skin (n=4, 4.1%), nasopharynx (n=4, 4.1%), ear (n=4, 4.1%), nose and paranasal sinuses (n=4, 4.1%), lip (n=3, 3.1%), oropharynx (n=3, 3.1%), parotid (n=2, 2.1%), and eye (n=1, 1%). Cervical lymphadenopathy with undetermined primary lesion site occurred in three (3.1%) of the patients. Eye was the site of blastoma in all three (100%) cases. Thyroid and tonsil were the sites of lymphoma in one (50%) case each. Orbit, maxilla and mandible were the sites of sarcoma in one (33.3%) case each. Nearly 25% of female patients suffered malignancies of the thyroid gland when compared to only 8.8% of male patients. Nearly 25% of male patients suffered malignancies of the larynx in disproportion to only 8.1% of female patients.

Discussion

Formation of regional epidemiological data on cancer is a significant platform to determine the priorities for cancer control in different geographical regions worldwide (Bhurgri et al., 2006; Binu et al., 2007). Head and neck cancers are a recognized major public health concern all over the world (Bhurgri et al., 2002). Yet, data on head and neck cancers in the WDR of Nepal is lacking. Therefore, an attempt was made for the first time to report the clinicopathological profile of head and neck cancers in the WDR of Nepal based on the data available at the only cancer treatment referral centre in the region.

Most head and neck cancers are of epithelial origin as in this study wherein nearly 93% of cancers were carcinomas. A previous study carried out in the Central Development Region of Nepal reported that nearly 90% of head and neck cancers were of epithelial origin (Thapa et al., 2003). Another study from the Central Development Region of Nepal reported 95% of head and neck malignancies to be carcinomas (Baskota et al., 2005). Among the carcinomas, squamous cell carcinoma is usually the most common variety. Our experience in this study is similar with the previous reports from Nepal and elsewhere, with squamous cell carcinoma accounting for nearly 62% of head and neck carcinomas. Thapa et al. (2003) and Baskota et al. (2005) in their respective studies found that 75% and 78% of head and neck carcinomas were squamous cell carcinomas. Anaplastic carcinoma (7.2%), the second most common type of carcinoma in our study was, however, not reported by Thapa et al. (2003) and Baskota et al. (2005). In the study by Baskota et al. (2005), the second most common type of carcinoma reported was papillary carcinoma (7.9%), followed by follicular carcinoma (4.6%) and adenocarcinoma (3.3%). While in our study, papillary carcinoma, follicular carcinoma and adenocarcinoma formed only 3.1%, 3.1% and 1% of carcinoma cases respectively. However, in the cohort of 17 head and neck malignant tumours studied by Thapa et al. (2003), only one case each of follicular carcinoma and adenocarcinoma were reported.

Three cases of sarcoma were reported in our study.

The other two studies from other regions of Nepal did not report any case of sarcoma (Thapa et al., 2003; Baskota et al., 2005). All the three blastomas in the present study were retinoblastomas. Blastomas did not feature in the other two head and neck cancer profile studies from Nepal (Thapa et al., 2003; Baskota et al., 2005). A study of primary malignant tumours of eye and adnexa in Eastern Nepal reported 38 eyes of 34 patients with retinoblastoma (Thakur et al., 2003). All the three retinoblastomas in our series were unilateral in different patients. Retinoblastoma is the commonest intraocular malignancy of childhood. In the study reported by Thakur et al. (2003) all the 34 patients were in the childhood age range with the youngest patient being 11 months old and the eldest being 10 years of age. In our study, two patients were three years of age and the third, a male adult aged 36 years.

Lymphomas formed only nearly 2% of the head and neck malignancies in our study. Both the cases were of non-Hodgkin's type. Thapa et al. (2003) reported only one case of non-Hodgkin's lymphoma. The other study from Nepal reported 5% of lymphomas in a cohort of 159 head and neck malignancies (Baskota et al., 2005). However, the type of lymphoma was not mentioned by Baskota et al. (2005). In contrast, in the Ilorin study from Nigeria, 20% of the head and neck malignancies were lymphoma, half of which were of the non-Hodgkin's variety (Ologe et al., 2005).

We observed that maximum number of patients suffering from malignancies of head and neck cancer ranged from 6th to 8th decades of life. Baskota et al. (2005) reported that 32% of patients were in the age range 51-60 years. On the other hand, we observed only 10.5% patients in the 5th decade of life.

In our study, the larynx was the most common site of primary lesion, the thyroid gland was second, followed by the tongue and hypopharynx. Females were more at risk of thyroid carcinoma, while males were more at risk of laryngeal carcinoma followed by carcinoma of the tongue and hypopharynx. An epidemiological review of head and neck cancers in Karachi reported oral cavity and larynx as the commonly affected sites in males, and oral cavity as the preponderant site in females (Bhurgri et al., 2006).

In conclusion, the pattern of head and neck cancers observed in the present study, despite the obvious limitation of not being population-based, provides reliable information on head and neck cancer morbidity in the WDR of Nepal that will be useful for health planning and cancer control, and future research in western Nepal.

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