East African Medical Journal Vol. 83 No. 5 May 2006

PATTERN OF OCCURRENCE OF HEAD AND NECK CANCER PRESENTING AT KENYATTA NATIONAL HOSPITAL, NAIROBI

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ABSTRACT

Background: Currently there is a dearth of data on the pattern of occurrence of head and neck cancers in Kenya.

Objective: To provide a comprehensive analysis of the pattern of occurrence of head and neck cancers in a Kenyan population.

Design: Retrospective hospital-based descriptive study.

Setting: Kenyatta National Hospital, Nairobi.

Result: A total of 793 cases were recorded consisting of 507 male and 286 female (M: F = 2:1). Most of the lesions arose from the upper aerodigestive pathway. The larynx was the most common site for aerodigestive malignancies. This was followed in order of frequency, by the tongue, the mouth, and the nasopharynx. Outside the aerodigestive pathway the eye was the most commonly affected site followed by the thyroid. Squamous cell carcinoma was the most common malignancy. Sarcomas were typically rare. Gender and age distribution showed an overall male preponderance and a wide age range. However, specific tumour sites and tumour types showed varying patterns of gender and age distribution.

Conclusion: This study confirms the relative prominence of laryngeal, oral and nasopharyngeal cancers in the African population. It is, however, at variance with other African studies regarding the relative frequency of nasal and paranasal cancers.

INTRODUCTION

Cancers of the head and neck constitute an important group of human malignancies. It is estimated that head and neck cancers constitute about 5–8% of all malignancies world-wide (1) and the trend appears to be increasing in the third World (2). However, the incidence and pattern of occurrence of head and neck cancer vary greatly among races and geographic regions. While head and neck cancers are relatively uncommon in the west, constituting about 4% of all malignancies, in the Asian continent and Indian subcontinent, they form 40–50% of all malignancies (3). Similarly, some cancer types are strongly associated with some geographic regions and racial groups (3). Currently, there are no reliable data on the incidence and pattern of occurrence of head and neck cancers in the Kenyan population.

Conventionally, the term head and neck cancer has been used to describe squamous cell carcinoma of the upper aerodigestive tract (3-5). By this
definition, skin, brain, ocular, thyroid and salivary gland malignancies and the infrequent tumours of other histologic types such as sarcomas and lymphomas are excluded from analysis. However, these lesions form a significant proportion of malignancies in the head and neck region and their inclusion in an epidemiological analysis provides a better perspective of malignancies in that region. The objective of this study was to make a comprehensive analysis of the pattern of occurrence of head and neck cancers presenting at a tertiary Kenyan hospital.

MATERIALS AND METHODS
A retrospective review of clinical and histological records of head and neck cancers diagnosed at Kenyatta National Hospital (KNH) was conducted and the cases analyzed for age, sex, site and histologic type. The case definition of this study was any malignant tumours of the head and neck diagnosed for the first time during the period 1999–2004, exclusive of the brain and oesophagus. Tumours diagnosed as reappearance of a previously treated tumour (recurrent or metastasis) were excluded. The data were analyzed by simple manual tally. The study received approval of the institutional ethical and research committee: approval number P3/1/2003 dated 22nd May 2003.

RESULTS
A total of 793 cases of head and neck malignancies were recorded consisting of 507 male and 286 female (M: F = 2:1). Table 1 presents the site, gender and age distribution of the head and neck cancers. Most of the malignancies arose from the upper aerodigestive pathway with the larynx being the most common site (15%). The other common sites within the upper aerodigestive pathway were the mouth (13.5%), and the nasopharynx (12.5%). Outside the aerodigestive pathway, the most common site was the eye (15.4%) followed by the thyroid gland (5.7%).

The overall gender distribution showed a male preponderance for the head and neck cancers. However, there were variations in gender distribution for different tumour sites and types. A male preponderance was seen at all sites except the lips, mouth and thyroid gland where there was a female preponderance and at the parotid gland where the lesions were equally distributed between the genders. For those sites showing a male preponderance, the oropharynx and larynx showed the highest gender disparity with a male to female ratios of 11:1 and 9:1 respectively. For those sites showing a female preponderance, gender disparity was highest for thyroid lesions with a female to male ratio of 4:1.

The age distribution for the head and neck cancers ranged from one day to 103 years with a mean of 52 years. The distribution of cancers by age and site showed that at all sites, with the exception of the eye, most of the cancers arose after the age of 40 years, with most having a peak incidence in the 50–60-year age bracket. The eye, on the other hand, was most commonly affected below 20 years with a peak incidence in the 0–9-year age bracket.

Table 2 shows the distribution of the malignancies by type, sex and age. By far the most common type of head and neck cancer was squamous cell carcinoma, accounting for 54% of cancers of the region. Other common malignancies included retinoblastoma, Kaposi’s sarcoma, adenoid cystic carcinoma, non-Hodgkin’s lymphoma and follicular thyroid carcinoma. Connective tissue sarcomas were characteristically rare. Gender distribution of the specific malignancies showed great variation with some showing a male predominance while others a female preponderance; and the rest no distinct gender bias. Squamous cell carcinoma was predominantly a male disease, while thyroid carcinoma was predominantly a female disease. The distribution of specific tumours by age showed that, with the exception of Burkitt’s lymphoma and retinoblastoma, all other head and neck malignancies tended to occur more commonly after the third decade, with most having their peak incidence in the 50–60-year age bracket. The majority of Burkitt’s lymphoma and retinoblastoma cases occurred below ten years of age.

DISCUSSION
Although the term head and neck cancers refers to a heterogeneous group of neoplasms that affect a wide variety of sites in the head and neck, when they are discussed, the terminology is often limited to squamous cell carcinoma of the upper aerodigestive pathway (3–6). This limited consideration of head and neck cancers, however,
fails to show the magnitude and diversity of cancers in this region. In this study a more comprehensive analysis was undertaken to get a broader picture of head and neck cancers in this population.

The incidence and pattern of occurrence of head and neck cancers vary greatly by race and geographic location. While head and neck cancers are relatively uncommon in the west where they constitute about 4% of all malignancies, in Asia and the Indian subcontinent, they are the most common forms of cancer contributing up to 50% of all malignancies (1). In addition, specific tumour types also show an uneven geographic and racial distribution. For example, nasopharyngeal cancer is seen more commonly in China, Hong Kong and the Far East, oral squamous cell carcinoma is seen more commonly in the Indian subcontinent; and laryngeal squamous cell carcinoma is the most predominant head and neck cancer in the West (1). Within African populations, the epidemiology of head and neck cancer is not certain. As in most other developing countries, the systematic study of cancer in Africa has been hospital-oriented and limited to a few centres with sophisticated histopathologic diagnostic facilities. Most knowledge, therefore, is based on biopsy and autopsy material (7,8). It is not difficult to appreciate the many possible constraints against getting comparable data between centres. These may include differences in sophistication of health care system, differences in fidelity to biopsy taking and differences in record keeping. Consequently, comparison and interpretation of data from different centres must be made with some degree of caution. Nevertheless, available data from African studies form a useful basis for further study.

In comparison with other African studies our study confirms the general features of head and neck cancers: that the disease affects the aerodigestive pathway predominantly and that squamous cell carcinoma is the most common cancer type (8,9). However, the relative frequency of tumours at different sites shows some differences. In the study by Ologe et al. (9), the nose and paranasal sinuses were the most common sites of primary lesions, followed by the thyroid gland. This finding was apparently consistent with the findings of other Nigerian studies (10,11). In the study by Manni and Huygen (8), however, the larynx was the most common site for head and neck cancers among Tanzanians. Our study supports this finding in the Tanzanian study. In common with the Tanzanian study, our study shows a much lower proportion of laryngeal cancer compared with that reported for the west. This, however, may be explained, at least in part, by the method of study. Where analysis is limited to the aerodigestive pathway and squamous cell carcinoma, as is common in studies from the west, the relative frequency of laryngeal carcinomas would be higher than that found in a more comprehensive study such as ours. The relative prominence of nasopharyngeal cancer in African populations is confirmed in our study where the nasopharynx is the third most common site for head and neck cancer. In the study by Ologe et al. (9), it was the third most common overall site, but the second most common aerodigestive site while in the Tanzanian study (8), it was the second most common site. The nasopharynx has been reported as the most common site for upper respiratory tract cancer in Uganda, Senegal and Sudan (12-14). In the rest of the world nasopharyngeal cancer is common in China and the Far East where it is related to the Epstein-Barr virus infection (1). Nosopharyngeal cancer is relatively uncommon in the west (1). The relative frequency of nasal and paranasal cancers in the African population is less clear. In the West African studies, the nasal cavity and paranasal sinuses are the most common sites for cancer. In Tanzania, the nasal and paranasal cancers, though not the most common, are fairly common constituting 15% of all head and neck cancers. In our study, the paranasal cancers are relatively rare. It is possible that some of the antral carcinomas in our study may have been diagnosed as maxillary carcinoma, thus obscuring the true incidence of paranasal cancers.

Age and gender distribution of cancers in our study do not differ significantly from those reported elsewhere (4,8,9). With the exception of Burkitt's lymphoma and retinoblastoma, head and neck cancers are seen most commonly after the age of 40 years. Similarly, with the exception of thyroid cancers, head and neck cancers appear predominantly in male than female. Female preponderance seen in the lips, floor of the mouth are probably a reflection of the relatively small samples seen at these sites. The large gender disparity seen in laryngeal carcinoma with a male to female ratio of 9:1 is similar to that reported in the West (4).
This study confirms the relative prominence of the nasopharynx as a site of head and neck cancer in African populations. It also confirms the relative prominence of the larynx as the most common site for head and neck cancers in East African populations. It, however, differed from other African studies with regard to the relative frequencies of nasal and paranasal cancers. The possibility of misdiagnosis of some antral carcinoma as maxillary carcinoma, therefore, requires further study.

ACKNOWLEDGEMENTS

To the Director of Kenyatta National Hospital for permission to publish these data. This study was supported by the research grant number 500-655/503 from the Deans’ Committee of the University of Nairobi.

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