MALIGNANT TUMORS OF HEAD AND NECK REGION
- A RETROSPECTIVE ANALYSIS
Farooq Aziz, Saood Ahmed, Asif Malik, Ameena Afsar and Noshin Wasim Yusuf

ABSTRACT
Objective: To evaluate the spectrum of malignant tumors of head and neck region.
Design: A department-based retrospective study.
Place and Duration of Study: It was carried out at the Department of Pathology, Allama Iqbal Medical College, Lahore, over a period of two years (1997-1999).
Subject and Methods: The data of total 375 neoplastic lesions of both the sexes between 8-70 years of age was collected and compared with the findings reported from centers in other parts of the country.
Results: Among the total 375 cases of neoplastic lesions, 148 were benign whereas 227 proved to be malignant histologically in 155 male and 72 female patients. Squamous cell carcinoma (SCC) was the most frequently encountered histological category (45.8%) followed by lymphoma (14.5%), basal cell carcinoma (10.5%), carcinoma thyroid (10.5%) and salivary gland tumors (8.80%). These were followed by infrequently encountered tumors including nasopharyngeal carcinoma (n=5), small blue round cell tumors (n=3), undifferentiated carcinoma (n=3), retinoblastoma (n=2) and transitional carcinoma nose (n=1). The anatomical regions involved with this tumor were larynx (53.5% of all SCC) followed by pharynx (18.7%), tongue (10.71%), oral cavity (4.4%) metastasis (5.3%) and skin (2.60%).
Conclusion: The frequency of the various malignancies was found comparable to the findings reported from other centres in Punjab and SCC was found to be the most common cause of malignancy.


INTRODUCTION
The malignant tumors arising within the anatomic region of head and neck cause a minority of cancer deaths but they represent significant diagnostic and therapeutic challenge. These malignant tumors account for approximately 5.6% of all body tumors in USA. Almost double this figure has been reported from Middle East where the incidence of head and neck tumors ranges between 12.2 to 18.4% of the whole body tumors.1

Depending on various geographical locations, environmental influences and role of known and unknown etiological influences, the frequency of various tumors of this region varies slightly in different parts of the world. In our country reports from south and north of country quote varying prevalence of head and neck tumors.2-4 So far, no study about head and neck region tumor has come up from Lahore. The objective of the present retrospective study was to see the spectrum of head and neck tumors received in Pathology Department of this tertiary care hospital over a period of two years.

MATERIAL AND METHODS
A retrospective study was carried out at the Pathology Department of Allama Iqbal Medical College, Lahore. The Histopathology Section maintains an up-to-date computerised record of all the biopsy specimens received along with the clinical history records. The data was retrieved from October, 1997 to October, 1999 and all the tumors of head and neck region were evaluated. Information about the age, sex, anatomical location and histopathological type of tumor was available with the biopsy reports. Data was collected and relative frequencies of various histological categories of the tumors were evaluated. The data was then compared with the information available from centers in other parts of the country.

RESULTS
A total of 375 neoplastic lesions, over a period of 2 years, were analyzed in this department-based retrospective study to see spectrum of malignant tumors in the head and neck region. Malignant neoplastic lesions comprised more than 60% as shown in figure 1. Male gender was dominant as compared to female with the ratio of 2:1. The spectrum of malignant tumors is depicted in table 1 with the preponderance of squamous cell carcinoma (SCC). The frequency of affected anatomical sites with squamous cell carcinoma is depicted in table 2. Twelve cases of Hodgkin’s lymphoma
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Figure 1: Break-up of head and neck neoplastic lesions (n=375)

Figure 3: Break-up of thyroid malignancies (n=24) (Male =16, Female = 8)

Figure 4: Break-up of salivary gland tumors (n =20)

Figure 5: Break-up of infrequently encountered tumors (n=22)

TABLE I
Break up of head and neck malignancies (n=227)

<table>
<thead>
<tr>
<th>Type of Tumor</th>
<th>No. of cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squamous Cell Carcinoma SCC</td>
<td>104</td>
<td>45.8</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>33</td>
<td>14.5</td>
</tr>
<tr>
<td>Basal Cell carcinoma (BCC)</td>
<td>24</td>
<td>10.5</td>
</tr>
<tr>
<td>Thyroid tumours</td>
<td>20</td>
<td>8.8</td>
</tr>
<tr>
<td>Salivary gland tumours</td>
<td>8</td>
<td>3.5</td>
</tr>
<tr>
<td>Metastasis</td>
<td>5</td>
<td>2.2</td>
</tr>
<tr>
<td>Nasopharyngeal carcinoma</td>
<td>3</td>
<td>1.3</td>
</tr>
<tr>
<td>Squamous blue round cell tumour</td>
<td>2</td>
<td>0.89</td>
</tr>
<tr>
<td>Undifferentiated carcinoma</td>
<td>1</td>
<td>0.44</td>
</tr>
</tbody>
</table>

TABLE II
Anatomical region involved by SCC (n=104) (Males = 74, Females = 30)

<table>
<thead>
<tr>
<th>Anatomical Site</th>
<th>No. of cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Larynx</td>
<td>62</td>
<td>59.6</td>
</tr>
<tr>
<td>Pharynx</td>
<td>14</td>
<td>13.5</td>
</tr>
<tr>
<td>Tongue</td>
<td>11</td>
<td>10.6</td>
</tr>
<tr>
<td>Oral cavity</td>
<td>10</td>
<td>9.7</td>
</tr>
<tr>
<td>Metastasis</td>
<td>4</td>
<td>3.6</td>
</tr>
<tr>
<td>Skin</td>
<td>3</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Basal cell carcinoma (BCC) and malignant neoplasm of the thyroid were encountered in 24 cases each. BCC involved different areas of face among 13 males and 11 females in the age group of 4th-6th decade.

Histological types of thyroid malignancies with the preponderance of papillary carcinoma are depicted in figure 3. Males again predominated with the age range of 14-70 years.

Salivary gland tumors constituted 8.8% of all the malignancies ranking 4th in frequency. Its histological types are depicted in figure 4. Parotid was the commonest gland involved with male to female ratio being 1.8:1 and the age range of 8-50 years.

Rest of the tumor types constituting a minority of the total malignancies of head and neck region as illustrated in figure 5.

were encountered, all presenting with cervical lymphadenopathy, 8 being males and 4 females with the age range of 15-35 years. Single case of Burkitt’s lymphoma with classical presentation at angle of jaw was seen in a 6 years old male child.

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DISCUSSION

Non-existence of centralized tumor registry in our country is the main reason for lack of precise statistical data about prevalence and incidence of cancer. However, regional and institution-based registry system 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. Large series from north and south of country have provided figures about the types and anatomical sites of various body malignancies. The Karachi tumor registry releases genderwise yearly figures about the 10 commonest malignancies.5 Head and neck region represents a relatively small anatomical area but gives rise to a wide range of neoplastic conditions. It accounts for 5.6% of all tumors in US. Studies from Saudi Arabia report an incidence of 4.5-18.4% out of all the body malignancies comparable to a frequency of 12.8% reported from Bahawalpur area in Pakistan.16 To the best of our knowledge no center from our country has explored the malignant tumors of head and neck area as a distinct entity.

Squamous cell carcinoma (SCC) was the most frequent histological entity in our series comparable with the report from India where it accounts for 40% of all cancers. Larynx was the commonest site involved by SCC in our series. A global variation in the incidence of carcinoma larynx has been noted as high rate has been reported from India (196/100,000) and lowest rate from Norway and Sweden.8 In USA 11,000 cases occur annually while U.K. reports a low figure of 1% of all body malignancies.9 In Pakistan it is reported as 5th commonest malignancy among males and 6.3% of all body cancers.5 In our series among SCC of head and neck region, laryngeal cancer was the most frequent 53.5%, followed by cancer of pharynx, almost one-third its incidence. Reports from Karachi rank pharyngeal cancer as 6th commonest in males.5 Another important anatomical site involved in SCC is oral cavity. Considering the proposed etiological agents an obvious geographical variation is seen as it constituted 4.4% of all the SCC of head and neck tumors in our study while study from Faisalabad reports it as 2.96% of all malignancies at 9th position among 10 commonest malignancies of both the sexes, whereas KEMC, Lahore, gives a figure of 7.0%.10 Comparing such low incidence with figures from north and south of country, one finds a drastic difference. In Peshawar oral cavity cancer ranks highest among the 10 commonest male malignancies (21.2%) against D.I. Khan and NWFP where it was 3rd commonest.4,11 Similar figures are reported from south of the country where LMC reported (21.8%) as the highest frequency tumor, while Sindh and Karachi reported it as 2nd commonest in both genders.5,12 This difference between Punjab, Sindh and NWFP clearly represents role of different operative etiological factors. Injudicious use of Pan and betal nuts in Karachi and other areas of Sindh and use of Naswar in NWFP definitely play a dominant role in causation of oral cavity cancer. Similar observations are strongly quoted from India where it is as high as 50% of all cancers.13

Study from south-west Saudi Arabia report it as 15.1% of head and neck cancer which is 3 times that of our figure.1 Here injudicious use of shama, an admixture of tobacco is held responsible as etiological factor comparable to the putative risk factor in Karachi.

Lymphomas were the 2nd commonest malignancies in our series as compared to reports from Faisalabad and Hyderabad where it rank as the 3rd commonest malignancy out of all the body malignancies i.e., (11.4% and 7.6% respectively) while AFIP and KEMC report primary lymphoid malignancy as occupying number one out of 10 commonest body cancer.3,15 Basal Cell Carcinoma (BCC) shares 3rd position along with thyroid tumors (10.5%) in our series, encountered on the skin of face at different sun-exposed sites. Primary BCC is the commonest skin tumor in Caucasians showing a remarkable geographical and racial variation. A study from Nairobi reported age specific mean annual incidence rate/million population as 58.5% for Caucasians and 0.065 for Africans.14 In our series 3 cases of squamous cell carcinoma of skin were also encountered making skin cancer common tumor of head and neck region. A Saudi study reports skin cancer as the commonest, 25% of head and neck cancer.1 BCC was more frequent in this study compared to SCC. Striking difference in skin cancer incidence have been reported from various parts of our country. Reports from Faisalabad (6.41%), Lahore (5.8%), Rawalpindi (6.67%) are all comparable and skin cancer ranked between 4th – 5th in the 10 commonest malignancies.3,10 Our figures of 10.5% from head and neck region might come down if ranked in relation to total body malignancies. Its high incidence at the rate of 2.1/100,000 per annum is also reported from NWFP. Peshawar gives a figure as high as 17.5%, D.I. Khan and Northern area rate it as 2nd among 5 common malignancies and 4th in 10 commonest malignancies respectively, similarly comparable figures of 5.52% are reported from Bahawalpur area.3,11 In contrast from south, a low figure of 3.5% of all body malignancies is reported for skin cancer.10 Thyroid malignancies ranked 3rd in our series, comparable to reports from UAE and Philippine where it was 3rd and 4th commonest respectively. Study from Saudi Arabia reports it as the most common malignant tumor in females.1 Karachi-based study from AKU quotes a figure of 2% of all the malignant tumors. Male to female ratios reported from different centres are comparable with a uniform reporting of female predominance. In USA it was 1:2.6; highest being from Japan 1:9, however a slight male predominance of 1.9:1 was observed in our series. Histological varieties encountered confirmed higher frequency for papillary carcinoma.

Salivary gland tumors ranked 4th in our series (8.8%), mucoepidermoid being the commonest histological type. Reports from Peshawar and Faisalabad rank these tumors as 10th and 8th in the 10 commonest malignancies, (4.66% and 3.54% respectively).4,10 Our figures of almost double their frequency is obviously not accurately comparable since we are analysing only the head and neck region. However the figure would certainly come down to comparable values if analysed in the context of whole body malignancies.

Nasopharyngeal carcinoma constituted a minority (2.2%) in our series. A tumor with well established etiological association of EB virus is highly prevalent in South East Asia with incidence rate as high as 56.9% in China.15 Reports from Netherlands also support a significantly high incidence in patients from Asia, conceivable environmental factors accounting for this high incidence.16 A low incidence of 0.25% is reported from Europe.15 A study from Saudi Arabia reports
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figures as high as 8.3% out of all the head and neck cancer, almost 15 times the figure from our series.1

CONCLUSION

A reappraisal of malignant tumors of this important anatomical region in the recent study highlights the wide spectrum of tumors encountered along with its relative frequency. The variation in the prevalence of such tumors in north, south and central parts of the country underscores the role of different etiological factors operating in these regions, reflecting the possibility of prevention by avoiding the putative causative factors. A close collaboration between different centres in province and at inter-provincial level is highly desirable for an authentic and meaningful data collection.

REFERENCES