Original Research

Clinical epidemiology of epithelial malignancies of head and neck region in first three decades of life

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ABSTRACT

Introduction: Upper aerodigestive tract (UADT) malignancy at ‘Green age’ is a rare phenomenon more so in first three decades of life. Unfortunately for these patients low suspicion index apart from the exotic biological behaviour of the tumour is major pitfall in achieving gratifying outcome.

Aim and objectives: To study the incidence, age and sex predilection, probable etiological factors, site of predilection, genetic predisposition and range of histopathological diagnosis in patients in first three decade of life.

Materials and method: This retrospective study, spanned over a period of 10 years, was carried at Government Medical College and Hospital (GMCH), Nagpur between January 1989 to June 1999. All the patients of head and neck malignancies below the age of 30 years were a part and cohort of this study.

Observations: In this study, it was observed that 3754 cases of head and neck malignancies were reported at Government medical college and hospital, Nagpur over the period of 10 years. 167 (4.5%) patients afflicted with head and neck cancer were less than 30 years of age revealing a incidence of 4.5%. Oral cavity and pharynx were the commonest site of predilection. Squamous cell carcinoma was the commonest histopathological variant.

Conclusions: Incidence of 4.45% is significant enough to raise the suspicion index of SCC in young patients up to 30 years. The sex ratio of 1.4:1 is another striking feature as females were only marginally behind to be afflicted. The carcinogenic exposure due to personal habit or occupation was not found to be the contributory factor.

Introduction

Squamous cell carcinoma, commonest malignancy of head & neck region, usually is regarded as the disease of elderly. Upper aerodigestive tract (UADT) malignancy at ‘Green age’ is a rare phenomenon more so in first few decades of life. This can partly be attributed to the either no exposure or exposure for short amount of time to the risk factors and partly to less willingness and inclination on the part of physician believe and suspect cancer despite worrisome yet subtle signs & symptoms. Fallout is delayed presentation and delayed diagnosis. Unfortunately for these patients low suspicion index apart from the exotic biological behaviour of the tumour is major pitfall in achieving gratifying outcome.

The problem of epithelial malignancies in young individuals appears to be challenging in more ways than one and certainly a ticklish issue from clinical, diagnostic and management perspective not to forget economic implications. However early diagnosis & timely intervention can minimise and dilute much of the morbidity & mortality in these patients. Epidemiological study was designed to uncover and explore range of facets like incidence, demographic profile, possible aetiology and histopathological variety, with the hope to bring improvement in survival and raising the bar.
of quality of life in the oncologically afflicted young patient.

**Aims and Objective:**
To study the incidence, age and sex predilection, probable etiological factors, site of predilection, genetic predisposition and range of histopathological diagnosis in patients in first three decade of life.

**Materials and Method:**
This retrospective study spanned over a period of 10 years. The records of the patients diagnosed with epithelial malignancies of head and neck region at the Government Medical College and Hospital (GMCH), Nagpur between January 1989 to June 1999 were reviewed. All the patients of head and neck malignancies below the age of 30 years were a part and cohort of this study. Patients above 30 years of age and patients with leukaemia, lymphoma, sarcoma and tumours of skin, orbit and central nervous system were excluded from the study. The records of all the cases were diligently scrutinised and the relevant data emerging from this screening exercise was documented in the specially made proforma for appropriate statistical analysis.

**Statistical Analysis**
The data was analyzed by using Statistical Package for Social Sciences (SPSS) version 11 the Chi-square test was applied.

**Observations**
In this retrospective study, on going through the records of patients with head and neck malignancies it was observed that 3754 cases of head and neck malignancies were reported at Government medical college and hospital, Nagpur over the period of 10 years. 167 (4.5%) patients afflicted with head and neck cancer were less than 30 years of age revealing an incidence of 4.5%. 8(4.7%) patients were in their first decade of life while 28 (16.7%) and 131(78.4%) patients were in the age bracket of 11-20 yr and 21-30 yr respectively. This is represented by table 1 and graph no.1. Males (97, 58.08%) outnumbered females (70, 41.92%). Thus male to female ratio was found to be 1.4:1. This is shown in graph no. 2.

Site of predilection was also studied in these 167 patients. Oral cancer in 35 (31.73%) pharyngeal cancer in 52(31.13%) and laryngeal cancer in 18(10.77%), malignancy of nose and PNS in 19(11.37%), salivary gland in 14(8.38%) were found. Cervical oesophageal carcinoma (5) Ear malignancy (2) lower lip and thyroid carcinoma (1each) were other sites. Outstanding feature of the study was primary sites of the two patients could not be identified and remained as occult primary (2). This is shown in table no. 2 and graph no. 3.

Squamous cell carcinoma was the commonest histopathological variant in 140(83.83%) Other epithelial malignancy we came across in this study were undifferentiated epithelial malignancy (9,5.38%), muco epidermoid carcinoma (7,4.19%), adenoid cystic carcinoma (7,4.19%), adenocarcinoma (2,1.19%), acinic cell carcinoma (1,0.59%), malignant changes in pleomorphic adenoma(1 ,0.59%) this data of histological variant is shown in graph no. 4.

Table 1:  Age and sex distribution of patients

<table>
<thead>
<tr>
<th>Decade</th>
<th>Males</th>
<th>Females</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>5</td>
<td>3</td>
<td>8(4.7)</td>
</tr>
<tr>
<td>Second</td>
<td>15</td>
<td>13</td>
<td>28(16.7)</td>
</tr>
<tr>
<td>Third</td>
<td>77</td>
<td>54</td>
<td>131(78.4)</td>
</tr>
<tr>
<td>Total</td>
<td>97</td>
<td>70</td>
<td>167</td>
</tr>
</tbody>
</table>
Table no. 2: Distribution according to the site of predilection

<table>
<thead>
<tr>
<th>Site of predilection</th>
<th>No. Of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral cancer</td>
<td>53(31.73%)</td>
</tr>
<tr>
<td>Pharyngeal cancer</td>
<td>52(31.13%)</td>
</tr>
<tr>
<td>Nose &amp; PNS</td>
<td>19(11.37%)</td>
</tr>
<tr>
<td>Laryngeal cancer</td>
<td>18(10.77%)</td>
</tr>
<tr>
<td>Salivary gland</td>
<td>14(8.38%)</td>
</tr>
<tr>
<td>Cervical oesophagus</td>
<td>5(2.99%)</td>
</tr>
<tr>
<td>Ear</td>
<td>2(1.19%)</td>
</tr>
</tbody>
</table>

Table 3. Comparative profile of sex ratio

<table>
<thead>
<tr>
<th>Author</th>
<th>No. Of male patients</th>
<th>No of female patients</th>
<th>Ratio(M:F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gardon B New et al³</td>
<td>140</td>
<td>193</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Paul J Carniol et al</td>
<td>21</td>
<td>15</td>
<td>1.4:1</td>
</tr>
<tr>
<td>Roy M Clarke et al</td>
<td>132</td>
<td>140</td>
<td>0.9:1</td>
</tr>
<tr>
<td>PrudencioMendez et al²</td>
<td>41</td>
<td>22</td>
<td>1.9:1</td>
</tr>
<tr>
<td>Present study</td>
<td>97</td>
<td>70</td>
<td>1.4:1</td>
</tr>
</tbody>
</table>

Graph no. 1: distribution of patients according to age

Graph no. 2. Sex distribution
Graph 3: Site Predilection

Graph 4: Histopathological variant

Discussion:
The epithelial malignancy of head and neck region in the younger age group (up to thirty of age) is a major problem owing to its unique nature and behaviour. This area is still unresolved as far as aetiology, biological behaviour, unpredictable clinical course and its potential to pose a diagnostic and therapeutic challenge to oncologists. The interval between the first symptom and presentation of these young patients for consultation is also relatively more as compared to the older patients which may be attributed to lack of suspicion, carelessness of the patient, ignorance of the treating
physician. Poverty, misconceptions and superstitions are other nonmedical factor leading to delayed attention to this area of head and neck malignacies in younger individuals.

This study was undertaken with the principal aim of finding out the magnitude of the head and neck malignancies in younger individuals i.e. less than 30 years, its demographic traits and probable etiological factor.

**Incidence:**

During the study period of 10 years, a total of 3754 patients were diagnosed and treated for head and neck malignancies at GMCH Nagpur. One hundred and sixty four (4.45%) of these patients were below thirty years of age. Thus the incidence of Head and Neck malignancies in younger age group was found to be 4.45%. Incidence ranging from 1.8% to 8.4% has been reported (Ref). Roy M Clark found incidence to be 2.58% while Barua B.D noted it to be 8.4%. Geographical, cultural, environmental and variable personal habits may explain the rift in the incidence.

**Age:**

The youngest patient in our series was a 4 year old male child with undifferentiated carcinoma of maxillary antrum. Ascending trend has been found in the incidence of malignancies in young patients in our study with number of cases of malignant diseases increasing with each succeeding decade. 8 (4.7%), 28 (16.7%) 131 (78.4%) respectively patients in 1st, 2nd and 3rd decade were observed. These observations are consistent with the studies made by Garden B New et al and Paul J Carniol.

**Sex distribution**

In present study this ratio was found to be 1.4:1 for patients below 30 years of age where 97(58%) were males and 70(42%) were females. In Shaukat Ali et al study the male to female ratio was found to be 4.5:1 in overall general cancerous population. The incidence of head and neck cancers parallels with the longevity, multiplicity and intensity of carcinogenic exposure (Young H Son et al). Hence in the general population males are more frequently affected than females. Probably they are more exposed to carcinogens due to their occupations and personal habits. Though we found male predilection it is notable that its only in marginal proportion and statistically not significant. These cohorts of young women lack the typical associated risk factors of alcohol, tobacco, and betel nut exposure and may represent a unique subset even within young HNSCC patients. Table 3 shows incidence of head and neck malignancies in males and females.

Suzanne T Ildstad et al in their study postulated that the increasing prevalence of Squamous cell carcinoma of the head and neck among women is due to exposure to many environmental factors in industries, their outdoor presence, changing aspirations and life style and changing social habits like liberal use of alcohol and cigarettes. But when medical records of our patients were revisited, this was not found to be true. Only 10 patients had positive history of chewing tobacco, betelnuts and betel leaves and among these patients only 2 patients had significant exposure to tobacco for 20 years. None of the patient gave history of smoking or alcohol consumption.

**Tumour location**

In present study after the oral cavity (31.73%), the pharynx (31.13%) was the most common site of the involvement. Tumors of larynx (10.7%) and nose and PNS (11.37%) were next in frequency followed by major salivary glands (8.38%), cervical oesophagus (2.99%) and Ear. In two patients primary site could not be identified.

**Histological differentiation**

Squamous cell carcinoma was the commonest histopathological variant found in 140(83.83%) cases while the remaining cases were...
diagnosed to have other epithelial malignancy like undifferentiated epithelial malignancy 9 (5.38%), mucoepidermoid carcinoma 7 (4.19%), adenoid cystic carcinoma 7 (4.19%), adenocarcinoma 2 (1.19%), acinic cell carcinoma 1 (0.59%), malignant changes in pleomorphic adenoma 1 (0.59%). Most of the patients presented with T3 and T4 tumours..

**Conclusion:**

Incidence of 4.45% is significant enough to raise the suspicion index of SCC in young patients up to 30 years. The sex ratio of 1.4:1 is another striking feature as females were only marginally behind to be afflicted. The carcinogenic exposure due to personal habit or occupation was not found to be the contributory factor. Although the association between human papillomavirus infection and oral cavity and oropharyngeal carcinoma is now well established, little is known about incidence trends in head and neck cancer among younger adults. With possibility of some genetic or chromosomal anomalies that contributed to this menace of head and neck malignancy at younger age further research to know molecular basis, about onco genes and chromosomal anomalies is called for. One of the infirmities of this study was that no genetic or chromosomal study was done as facility was not available.

**References**

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