Histomorphological Variants of Squamous Cell Carcinoma in Upper Aero-digestive Tract

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Abstract
Background: To determine the site wise frequency of squamous cell carcinoma variants in upper aero-digestive tract.
Methods: In this observational study all the cases of diagnosed squamous cell carcinoma of upper aero digestive tract were included. All the cases were formalin fixed and processed routinely to form paraffin blocks. Slides were made and stained with H&E.
Results: Out of 41 cases, 33 cases showed the classic pattern of squamous cell carcinoma, which arose from Oral cavity, alveolar ridge, tongue, oesophagus, palate, pharynx, nose, larynx and bronchus. Most of the classic squamous cell carcinomas were of keratinizing type.
Conclusions: Majority of cases of squamous cell carcinomas in upper aero-digestive tract revealed classical pattern.
Key Words: Histomorphological Variants, Squamous cell carcinoma, Upper aero-digestive tract

Introduction
Squamous cell carcinoma is the commonest malignancy seen in the upper aero-digestive tract. Several factors contribute to the causation of this malignancy, mainly including alcohol, smoking, snuff, radiations and genetic factors. There are different variants of squamous cell carcinoma, most of which do not pose diagnostic dilemma to the pathologist. Certain types, however, mimic benign and other malignant diseases on a morphological ground & therefore require correct diagnosis for prognostic and therapeutic reasons. The commonest of these variants is the classic type, constituting sheets and nests of atypical squamous cells, keratinizing or non-keratinizing. 1 Different variants are seen in different areas, with the frequency of one being predominant at one place and other at some other place.
Variants, other than the classic pattern, that are seen in respiratory tract include lymphoepithelioma, spindle cell type and verrucous carcinomas. 2 Papillary, clear cell and basaloid patterns have occasionally been described in lung. Similarly in digestive tract, verrucous, sarcomatoid, papillary, adenosquamous and basaloid patterns have been described. 3 Usually majority of these patterns are identifiable if an adequate histopathology specimen is available, revealing squamous cell differentiation in at least few foci. However these patterns might be difficult to categorise as being histomorphological variants of Squamous cell carcinoma if biopsy material is small or not representing squamous differentiation.

Patients and Methods
This descriptive study was performed in Pathology department of Pakistan Institute of Islamabad from January to September 2016. Study included all the cases of diagnosed squamous cell carcinoma of upper aero digestive tract, during these nine (09) months.
retrieved from Laboratory management information system. All the cases were formalin fixed and processed routinely to form paraffin blocks. Slides were made and stained with H&E.

**Results**

Out of 41 patients, 19 were males and 22 were females. Thirty three cases showed the classic pattern of squamous cell carcinoma (Table 1; Figure 1-5). The tumour cases which showed classic squamous cell carcinoma pattern arose from oral cavity, alveolar ridge, tongue, oesophagus, palate, pharynx, nose, larynx & bronchus. Most of the classic squamous cell carcinomas cases showed keratinization in the form of keratin pearls and were placed in the well differentiated group. 11 cases were moderately differentiated and 5 were poorly differentiated (Table 2).

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<thead>
<tr>
<th>Table 1. Frequency of SCC variants at different sites</th>
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<tr>
<td>Type</td>
</tr>
<tr>
<td>Classic</td>
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<tr>
<td>Spindle cell type</td>
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<tr>
<td>Verrucous CA</td>
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<tr>
<td>Adenosquamous type</td>
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<tr>
<td>Basaloid squamous type</td>
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<tr>
<td>Lymphoepithelioma type</td>
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<tr>
<td>Papillary type</td>
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<tr>
<td>Clear cell type</td>
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<td>Total number of cases</td>
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<th>Table 2. Differentiation of classic squamous cell carcinomas</th>
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<tr>
<td>Differentiation</td>
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<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Well differentiated</td>
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<tr>
<td>Moderately differentiated</td>
</tr>
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<td>Poorly differentiated</td>
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**Discussion**

Squamous cell carcinoma of the head and neck region is an aggressive epithelial malignancy that constitutes 6th most common neoplasm in the world today. At the current rate, approximately 40,000 cases in the USA and > 5, 00,000 cases will be diagnosed each year worldwide. Despite the advancements made in treatment protocols, long term survival has remained <50%. In the oral cavity, favoured sites for squamous cell carcinoma include ventral surface of tongue, floor of mouth, lower lip, soft palate and gingival. Intraoral squamous cell carcinomas vary widely in their degree of differentiation. Those located at the base of tongue or in tonsils are particularly undifferentiated. In this region, following the classic type of squamous cell carcinoma, verrucous carcinomas, are seen commonly.
Far less in frequency of occurrence are adenosquamous, basaloid squamous, spindle cell, small cell and lymphoepithelioma type carcinomas. In the upper respiratory tract, commonest squamous cell carcinoma types in sinonasal and nasopharyngeal areas include classic type followed in frequency by transitional, verrucous, basaloid squamous, sarcomatoid, small cell and undifferentiated types. Spindle cell variant of squamous cell carcinoma is a rare type of squamous cell carcinoma, with aggressive behaviour, which is predominantly found in the upper aero-digestive tract. This tumour is characterized by biphasic pattern composed of malignant spindle cells along with malignant squamous carcinoma/ carcinoma in situ or dysplasia. Since it leads to obstructive features, quite early in the disease progression, therefore its detection rate is relatively high during the earlier part of natural history of disease.

Verrucous carcinoma of upper aero-digestive tract is associated with a favourable prognosis compared to classic squamous cell carcinoma. Histologically, it is characterized by exophytic growth, minimal cytological atypia and broad, blunt papillae which are pushing in nature. Basaloid squamous cell carcinoma is a rare high grade type arising particularly from upper aero digestive tract. Its preferred site of origin is base of tongue, tonsils and larynx. Histologically, the tumours are invasive composed of pleomorphic, basaloid-appearing cells with hyperchromatic nuclei (Figure 3). Mitotic figures, including atypical forms, are identified along with foci of squamous differentiation.

Lymphoepitheliomas are malignant epithelial tumours with infiltrate of non-neoplastic lymphocytes. This tumour is associated with EBV infection, and not infrequently located throughout the upper aerodigestive tract. It is an aggressive tumour with high metastatic rates. Adenosquamous carcinoma is a rare aggressive neoplasm that has a worse prognosis than either squamous or adenocarcinomas. It is characterized by a malignant squamous and malignant glandular components. It is also associated with frequent recurrences along with metastasis.

References