Mini Review
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The changing parameters in the management of head and neck oncology-pathologist role

Abstract

Oral cancer is one of the most common cancers prevalent in the world. The outcome of the patient's treatment depends not only on the stage but also on various prognostic parameters. In this review article, prognostic factors which should be included in pathology report have been summarized.

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Introduction

Squamous cell carcinoma is the most common tumor of oral cavity. The prognosis of it depends on many factors. It was found in various studies that early stage oral cancer doesn't always portend good prognosis. Brandwein–Gensler et al.,[1] Jakobsson et al.,[2] Anneroth et al.,[3] Bryne et al.,[4] proposed a multiparametric histologic risk assessment score (HRS) that was reported to predict the survival of patients with T1 to T4 oral SCC and capable of differentiating high-risk and low-risk patients. Thus early stage may require aggressive treatment if there are risk of adverse outcome present.

Discussion

The eighth edition of AJCC has recommended various changes in calculating the risk assessment.[5] Depth of invasion (DOI) has been added as a modification to T to enhance the distinction between the superficial or exophytic tumors and those that are more invasive. The T changes for every 5mm increase in DOI in three categories: less than or equal to 5mm; greater than 5mm, but not greater than l0mm; and greater than10mm). DOI should be differentiated from the tumor thickness. Thickness is usually measured from the mucosal surface of the tumor to the deepest point of tissue invasion in a perpendicular fashion with an optical micrometer or transparent ruler overlaid on the slide, while DOI is measured from the basement membrane of adjacent normal to the deepest point of invasion of the tumor. Extrinsic muscle infiltration is no longer a staging criterion for T4 designation in oral cavity.[5]

Worst pattern of invasion (WOPI) plays an important role in the local regional recurrence. WPOI 1-4 are non aggressive tumor and have either broad pushing fronts, or finger-like pushing fronts, or large (>15 cells) separated islands; having small tumor islands (<15 cells per island) which are discontiguous, or convincingly separated from the main tumor mass. WPOI-5 tumors are recognized by a dispersed, discontiguous growth pattern; the degree of tumor dispersion exceeds that seen for WPOI-1-4 tumors with a defined cut-off of 1 mm. The tumor dispersion distance may be measured between the main tumor and ''the first wave'' of dispersed satellites, or between subsequent, distal waves of satellites. Extratumoral PNI and LVI also qualify for WOPI-5.[6]

Tumors with "close" margins carry an increased risk for local recurrence. The cut off point for close margin is 5mm in general. The status of both specimen margin and tumor bed margin submitted separately should be reported. There should be close interaction between the pathologist and the surgeon in case of differing margin status i.e tumor bed margin is positive and specimen margin is negative.

The presence of perineural invasion (PNI) is associated with poor local disease control, regional control, metastasis to regional lymph nodes and decrease survival. Perineural invasion is defined as carcinoma that specifically wraps around a nerve. Thus SCC adjacent to nerves, (or''bumping'' against nerves) are excluded. Large nerves are defined as >1mm in diameter. Extratumoral PNI is prognostically more important than intratumoral. Both of them should be mentioned.[7]

Lymphovascular invasion (LVI) can be seen both intratumoral and extratumoral. Similar to PNI, it should be reported separately.

Lymphocytic host response (LHR) is assessed light microscopically at the advancing tumor edge, and is assessed cumulatively as the overall strongest response. The quantification of T lymphocytes is not required rather formation of lymphoid follicles is assessed. It is classified as either strong, intermediate, or limited, based on the presence of lymphoid nodules. Lymphoid nodules are defined as dense collections of lymphocytes directly adjacent to the tumor host interface; at 20×power the lymphocytes comprise at least 50% of the microscopic field adjacent to carcinoma. Tumors with strong LHR are defined as having at least one lymphoid nodule at the tumor interface per each low-power 4×microscopic field. Tumors with lymphoid response below this threshold, but with one or more lymphoid nodules, qualify as having intermediate LHR. Weak LHR was assigned for limited response that lacks any lymphoid follicles. The strong LHR is associated with good outcome.[8]

Lymph node involvement is the single most important prognostic factor. Reporting of lymph nodes containing metastasis should include whether there is presence or absence of extranodal extension (ENE), which is now part of N staging. This finding consists of extension of metastatic tumor, present within the confines of the lymph node, through the lymph node capsule into the surrounding connective tissue, with or without associated stromal reaction. A distance of

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extension from the native lymph node capsule is now suggested (but not yet required) with the proposed stratification of ENE into ENEma (>2mm) and ENEmi (≤2mm). However, pitfalls in the measurement (ie, in larger, matted lymph nodes, in nodes post fine-needle aspiration, and in nodes with near total replacement of lymph node architecture) and the disposition of soft tissue deposits is still not resolved. Soft tissue deposits appear to be the equivalent of a positive lymph node with ENE.[5,9]

All the above histopathological parameters are significant and can predict the overall survival of the patients. Thus, a pathologist plays an important role in planning the treatment of oral cancer. The histopathology report should include not only the diagnosis but also the various prognostic factors.

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None.

Conflicts of interest

The authors declare that they have no competing interests.

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