

Tumour-Associated Tissue Eosinophilia as a Prognosticator in Oral Squamous Cell Carcinoma

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Abstract : Background: The infiltration of tumour stroma by eosinophils, Tumor-Associated Tissue Eosinophilia (TATE), is known to modulate the progression of Oral Squamous Cell Carcinoma (OSCC). Eosinophils have direct tumoricidal activity by release of cytotoxic proteins and indirectly they enhance permeability into tumor cells enabling penetration of tumoricidal cytokines. Also, eosinophils may promote tumor angiogenesis by production of several angiogenic factors. Identification of eosinophils in the inflammatory stroma has been proven to be an important prognosticator in cancers of mouth, oesophagus, larynx, pharynx, breast, lung, and intestine. Therefore, the study aimed to correlate TATE with clinical and histopathological variables, and blood eosinophil count to assess the role of TATE as a prognosticator in Oral Squamous Cell Carcinoma (OSCC). Methods: Seventy two biopsy-proven cases of OSCC formed the study cohort. Blood eosinophil counts and TNM stage were obtained from the medical records. Tissue sections (5µm thick) were stained with Haematoxylin and Eosin. The eosinophils were quantified at invasive tumour front (ITF) in 10HPF (40x magnification) with an ocular grid. Bryne's grading of ITF was also performed. A subset of thirty cases was also assessed for association of TATE with recurrence, involvement of lymph nodes and surgical margins. Results: 1) No statistically significant correlation was found between TATE and TNM stage, blood eosinophil counts and most parameters of Bryne's grading system. 2) Statistically significant relation of intense degree of TATE was associated with the absence of distant metastasis, increased lympho-plasmacytic response and increased survival (diseasefree and overall) of OSCC patients. 3) In the subset of 30 cases, tissue eosinophil counts were higher in cases with lymph node involvement, decreased survival, without margin involvement and in cases that did not recur. Conclusion: While the role of eosinophils in mediating immune responses seems ambiguous as eosinophils support cell-mediated tumour immunity in early stages while inhibiting the same in advanced stages, TATE may be used as a surrogate marker for determination of prognosis in oral squamous cell carcinoma.

Keywords : tumour-associated tissue eosinophilia, oral squamous cell carcinoma, prognosticator, tumoral immunity

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