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Evaluation of tumour-stroma ratio as a prognostic marker for oral squamous cell carcinoma

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Introduction and objectives: Tumour-associated stroma has been found to play an important role in tumour progression. The ease of assessment of tumour stroma ratio (TSR) and the inter-observer reproducibility makes it a cost-effective prognostic parameter for oral squamous cell carcinoma (OSCC). The objective of the present study was to evaluate the role of TSR as a prognostic marker in OSCC.

Methodology: This retrospective study was carried out at our hospital on 93 consecutive cases of OSCC with radical neck dissection specimens. The TSR was scored independently by two pathologists, and the patients were divided into two groups as TSR <50% (stroma poor) and TSR≥50% (stroma rich). TSR was correlated with known prognostic variables including age, site of the tumour, lymphovascular invasion (LVI), perineural invasion (PNI), the worst pattern of invasion (WPOI), T and N stage and prognostic stage group of the tumour. The statistical analysis was carried out with the Wilcoxon rank sum test, Pearson's Chi-squared test and Fisher's exact test using R version 4.0.3 (R Core team 2019).

Results: 52.7 % of cases (49/93) were stroma poor with TSR <50%. 47.3% (44/93) cases were stroma rich. A significant correlation was noted between the age (p=0.016), site of OSCC (p= 0.041), PNI (p = 0.018), stage group of tumour (p = 0.004) and TSR. On univariate regression analysis age (p = 0.013), PNI (p= 0.020), and stage group of tumour (p= 0.018) were significantly associated with TSR.

Discussion: The role of TSR is still in the exploratory phase. Hence, the data from this study will emphasize its significance in OSCC.

Conclusion: TSR can be used as a prognostic and predictive marker in the OSCC. A high TSR might be associated with a better prognosis as compared to a low TSR.

Keywords: oral squamous cell carcinoma, tumour stroma ratio, prognosis, the Indian population

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