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Immunohistochemical labeling of phospho-histone H3 for histoprognostic grading of oral squamous cell carcinomas

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Background & Objective: The hallmark of oral cancer is excessive proliferation of cells, which is attributed to abnormally increased mitosis. An antibody directed to phosphorylated histone H3 was recently proposed for counting mitotic figures which is one of the most essential factors for determining the histologic grade of OSCC. The aim of the present study was to identify the presence of PHH3 antigens in sections of proven cases of OSCC with immunohistochemistry, also to distinguish mitotic figures from apoptotic bodies and karyorrhectic debris for faster identification and accurate labeling of mitotic figures.

Method: 45 tissues of histologically diagnosed cases of OSCC and 10 of normal oral mucosa (controls) were evaluated for the selectivity of H&E and PHH3 immunohistochemical marker.

Results: In all the tissues tested with PHH3, mitotic figures were easily detected and the mean number of mitotic figures was highest in PHH3 labeled sections in both the study and control group when compared to H&E. In different grades of OSCC the mean number of mitotic figures using PHH3 was found to be higher in PDSCC as compared with MDSCC and WDSCC.

Conclusion: Increased mitotic figures and identification of prophase nuclei with rapid detection of mitotic figures even at low power magnification was possible by PHH3 staining making it a sensitive marker as compared to H&E. PHH3 is a relatively new marker and to the best of our knowledge, no study has been conducted so far to show the correlation between PHH3 mitotic indexing (MI) and recurrence-free survival in a large cohort of oral squamous cell carcinomas.

Biography

Vaishali Narayen has completed her Bachelors of Dental Surgery from Rajiv Gandhi University and Masters in Oral Pathology from Dr NTR University of Health Sciences. She is a recipient of Gold Medal for the best outgoing student in graduation and for securing the 3rd rank in the University in the specialty of Oral Pathology. She is serving as an Assistant Professor of Oral Pathology at Government Dental College and Hospital, Hyderabad, India. She has 5 publications in both national and international journals and has given lectures in various forums.

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