

4th International Conference on

CYTOPATHOLOGY & HISTOPATHOLOGY

August 29-30, 2018 | Boston, USA

Association of E-cadherin and Vimentin expression with clinicopathological parameters in lingual squamous cell carcinoma

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Statement of the problem: Lingual squamous cell carcinomas (SCC) pose a major burden in the Indian society, amounting to an incidence of 3.6%. Epithelial mesenchymal transition (EMT) is the phenomenon wherein an epithelial cell converts to a mesenchymal phenotype at the invasive front (IF), by a process of transdifferentiation, enhancing the invasiveness and metastatic potential of these cells which may be studied using immunohistochemistry (IHC), using E-cadherin and Vimentin, as in the present study. Since the Indian literature regarding their association with the histological risk assessment score is limited, we attempted to correlate their expression with the aforementioned along with various clinical parameters, histomorphology and the lymph node metastasis.

Methodology: Thirty consecutive untreated patients diagnosed as lingual SCC who underwent hemiglossectomy, over a period of one year, formed the study group. The immunohistochemical expression of E-cadherin and Vimentin was studied in the tumor islands, namely in the periphery and centre and correlated with clinicopathological parameters.

Findings: Risk factors were significantly higher in men and a better histomorphology, pattern of invasion and a lower stage were seen in patients presenting earlier. Those with an exophytic growth at presentation showed a higher pathological stage. Reduced E-cadherin at the IF was seen in a significant number of cases (80%,25/30) but only a few showed a corresponding gain in Vimentin (20%,5/25). Vimentin was expressed by epithelial cells irrespective of their location (43.4%, 14/30). Tumors with a loss of E-cadherin belonged to a lower stage (64%, 16/25) and showed no lymph node involvement (68%, 17/25) and those with gain in Vimentin showed lower rates of perineural invasion (62.5%, 5/8).

Conclusion: EMT may not be a unique phenomenon at the IF and cells may infiltrate even in the absence of complete EMT, as cohesive groups and clusters, which may be explained by incomplete EMT as depicted by a loss in E-cadherin expression without Vimentin positivity.

Biography

Neelakshi Goyal is a third year postgraduate student at Maulana Azad Medical College, Delhi, India and is an alumnus of the prestigious Lady Hardinge Medical College, New Delhi where she did her MBBS. She has been the recipient of five distinctions and certificates of merit during her undergraduate medical training, one in Pathology and also secured the second position in Delhi University. She has conducted the above study which is novel in its approach and results, under the tutelage of Dr Nita Khurana, the Head of Department Pathology and Dr Meeta Singh, Assistant Professor, Department of Pathology, who have various publications to their names. During her post graduate training, she has also presented various papers and is the winner of the annual quiz held by Delhi chapter of pathology.

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