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Comparative immunohistochemical analysis of Beclin-1&MDM-2 in benign and malignant ameloblastomas

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Background: Ameloblastoma is the most frequently encountered neoplasma rising from the odontogenic epithelium. Beclin-1 protein plays a critical role in autophagy as a tumor suppressor gene. Whereas, the Murine Double Minute 2 (MDM-2) is a cellular proto-oncogene capable if amplified of causing tumor-genesis. The expression and prognostic significance of both genes are largely unexplored yet in this neoplasia. Therefore, the present investigation aimed to assess their possible biological role in ameloblastomas.

Methods: This study was done among 35 studied cases: 29 cases of benign ameloblastomas and 6 cases of ameloblastic carcinomas. Labeled Streptavidin Biotin (LSAB+Dako) immunohistochemical method utilizing monoclonal antibodies for Beclin-1&MDM-2 genes was used.

Results: Most of the benign ameloblastomas showed intense total cell positivity for the Beclin-1 while, the ameloblastic carcinomas revealed mild to negative expression. Inversely, the MDM-2 oncoprotein demonstrated intense brown total cell reactivity in ameloblastic carcinoma and loss of the reaction to mild brown stain in benign ameloblastoma.

Conclusion: Based from these findings, one could conclude that MDM-2 could be a specific marker to identify the proliferative activity, tumor aggressiveness and directly proportional with the degree of malignancy. In contrast, the high Beclin-1 expression could be a good indicator of prognosis in ameloblastomas. Hence, an overall comparison both studied genes may be very promising molecular prognostic biomarkers.

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