CLINICOPATHOLOGICAL FEATURES AND IMMUNOHISTOCHEMICAL EXPRESSION OF BUBR1, MCM2, GEMININ IN ORAL EPITHELIAL DYSPLASIAS AND THEIR CORRESPONDING SQUAMOUS-CELL CARCINOMAS DIFFERENT SITES OF THE ORAL CAVITY

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Introdution

Anatomical location has an important relationship with the biological behavior of tumors, and further research is needed to understand which biomarkers or mechanisms explain different responses to therapy. With the advent of genomics, protein, and metabolic profiling, comprehensive biomarkers have been discovered that can identify tumors with greater invasive and metastatic potential. The aim of this study was to determine the immunohistochemical expression patterns of BUBR1, MCM2, and Gemini proteins in oral dysplasia and squamous cell carcinoma and to evaluate the expression of different oral expression profiles.

Methods

After approval by the Institutional Ethics Committee for Research Involving Humans (Protocol number: 2,300,886), tissue samples diagnosed with oral dysplasia (66) and oral squamous cell carcinoma (63) were selected. The sample size is reasonable and scaled to the 95% confidence level. Clinicopathological and demographic data were obtained from medical records. 4 µm thick tissue sections were prepared from selected blocks and placed on silane-treated slides for immunostaining procedures. Slides were independently evaluated by two experienced pathologists using a light microscope at 400X magnification. In immunostained slides, the labeling index (LI) was expressed as the percentage of positive cells in tumor cells. The cutoff to define a case as positive was LI ≥ 10% for all proteins. For all microscopic analyses, at least 1,000 tumor cells were counted in high-power fields. The results of the staining scores were used in the analysis of the mean.

Results

Geminin, MCM2, BUBR1 (a nucleotide and cytoplasmic marker) and Ki67 showed statistically significant overexpression in tumors compared to dysplasia. The results indicated that squamous cell carcinoma cells were in a highly proliferative state, as indicated by the levels of these cited proteins. The LI index of Ki 67 in this study indicated that it is a potent marker of cell proliferation in extra-oral and intra-oral sites. Furthermore, there were correlations between the LI of different sites and different proteins, the most relevant of which were: Geminin with tongue and postmolar region, MCM2 with oral mucosa, BUBR1 (cytoplasmic) with bottom. These findings suggest that the expression of these proteins may be associated with clinical parameters localized in oral cancer.

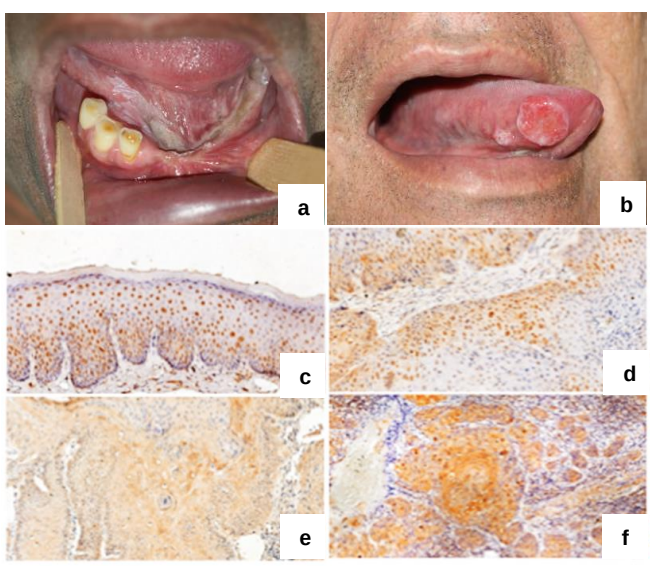

Figure (a). Oral epithelial dysplasia (OED) in month's floor. **(b)** Oral squamous cell carcinoma (OSCC). **(c)** and **(d)** Strong core-localized BubR-1 staining in OED and OSCC. (e) Cytoplasmic staining of BubR-1 in severe epithelial dysplasia. (f) BubR-1 in cytoplasm of OSCC cells.

Conclusion

The data observed in the analyses to date seem to suggest that there is a correlation between the differential expression of proteins in different parts of the oral cavity. In addition, geminin, MCM2 and BUBR1 proteins may have prognostic value in oral squamous cell carcinoma. Such results need to be confirmed by more research.

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