

# Immunohistochemical expression and significance of $\beta$ -catenin in oral squamous cell carcinoma in relation with pattern of invasion

Ali H. Murad, B.D.S., M.Sc, PhD (1)

Muna S. Merza, B.D.S., M.Sc., Ph.D. (2)

## ABSTRACT

**Background:** Head and neck squamous cell carcinoma (HNSCC) is the eighth and 13th most common malignancy in the world for males and females, respectively, with the majority of malignancies of the upper aerodigestive tract being oral squamous cell carcinomas (OSCC). OSCC, accounts for about 90% of malignant oral lesions, and is identified as the most frequently occurring malignant tumor of oral structures.  $\beta$ -catenin ( $\beta$ -cat) is a protein that in humans is encoded by the CTNNB1 gene, plays a role in cell-cell-adhesion (CCA), and reduced expression of  $\beta$ -cat, is present in several types of malignancies, especially those of a more aggressive nature and a higher metastatic potential. There is general agreement that the most useful prognostic information can be deduced from the pattern of invasion (POI) of the tumor, where the deepest and presumably most aggressive cells reside

**Materials and Methods:** Forty-five formalin – fixed, paraffin – embedded blocks of totally excised Oral Squamous Cell Carcinoma were collected pro- and retrospectively were included in this study. Hematoxylin & Eosin stain was performed for each block for reassessment of histopathological examination. An immunohistochemical (IHC) staining was performed using anti  $\beta$ -cat monoclonal antibodies.

**Results:** Histologically, Broad pushing ‘fingers’ represented the most common type of pattern of invasion(46.67%). Immunohistochemically,  $\beta$ -catenin positive immunoreaction mostly reported in score 2 (51.11%), Statistically, the  $\beta$ -catenin showed significant correlation with pattern of invasion.

**Conclusion:** A significant correlation was seen regarding the expression of  $\beta$ -catenin with pattern of invasion suggesting the loss of adhesion between the tumor cells.

**Keywords:** OSCC,  $\beta$ -catenin, Immunohistochemistry