

## **ABSTRACT**

### **BACKGROUND:**

Oral squamous cell carcinoma (OSCC), represents over 90% of malignancies of the oral cavity. Despite the advances in diagnosis and therapy, OSCC continues to have a shorter survival rate. Verrucous carcinoma (VC) of the oral cavity is a low grade variant of OSCC. The study of cell proliferation is important for assessing the tumor behaviour, prognosis and patient survival of both these tumours. As literature search did not reveal sufficient studies of immunohistochemical expression of Cyclin D1 and Mini Chromosome Maintenance 2 (MCM2) in OSCC and VC, the present study was done to evaluate the expression of these two cell proliferation biomarkers in Oral Squamous cell carcinoma and Verrucous carcinoma.

### **AIM:**

To evaluate the immunohistochemical expression of MCM 2 and Cyclin D1 in oral squamous cell carcinoma and verrucous carcinoma.

### **MATERIALS AND METHODS:**

This immunohistochemical study was conducted on the archives retrieved formalin fixed, paraffin embedded tissue sections from the Department of Oral and Maxillofacial Pathology, Adhiparasakthi Dental College and Hospital, Melmaruvathur. The study group included 20 cases of histopathologically diagnosed Oral Squamous Cell Carcinoma (10 cases of well differentiated squamous cell carcinoma, 10 cases of Moderately differentiated Squamous Cell Carcinoma) and 10 cases of histopathologically diagnosed verrucous carcinoma.

Control group included 10 biopsies from the normal buccal mucosa adjacent to the site of surgery during the surgical removal of third molars in patients. All samples were evaluated for the expression of Cyclin D1 and MCM 2 using standard immunohistochemistry procedure.

The present study involved both qualitative and quantitative analysis. Qualitative analysis was done by evaluation of intensity of staining and area of staining. Quantitative analysis was done by calculating the percentage of positively stained cells and assessing the Labelling Index. Data obtained was subjected to statistical analysis using SPSS statistical package (version 19.0).

## **RESULTS**

On evaluating and comparing Cyclin D1 and MCM 2 intensity and area of staining between the groups, statistically significant values ( $p < 0.05$ ) were obtained using Kruskal Wallis' ANOVA. Comparison of LI of Cyclin D1 and MCM 2 in normal mucosa, OSCC and VC statistically significant results ( $p < 0.05$ ) were obtained using Mann Whitney U test. Mean LI of MCM2 was found to be significantly higher than mean LI of cyclin D1 in all the study groups.

## **CONCLUSION**

From the present study we conclude that MCM2 has the potential to serve as a novel cell proliferation biomarker in OSCC and VC as compared to Cyclin D1.

**Key Words:** Oral squamous cell carcinoma, Verrucous carcinoma, Cyclin D1, MCM2, cell proliferation.