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Oral

Expression Of Gamma Glutamyl Hydrolase And Carbonic Anhydrase 9 In Oral Squamous Cell Carcinoma And Their Association With Extracapsular Spread

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Introduction: Extracapsular spread (ECS) is one of the most important prognostic factors in oral squamous cell carcinoma (OSCC). Gamma Glutamyl Hydrolase (GGH) is a lysosomal enzyme which is involved in folate homeostasis. It is overexpressed in several human malignancies but its role in OSCC has never been reported. Carbonic Anhydrase 9 (CA9) is a transmembrane glycoprotein and is related to hypoxia. High expression of CA9 has been associated with poor prognosis in several tumours including OSCC. This study was aimed to investigate the expression of GGH and CA9 in OSCC and their potential use as biomarkers to predict ECS. **Materials and Methods:** Immunohistochemical staining with GGH and CA9 markers were performed in 35 cases of OSCC (19 with ECS and 16 without ECS) and 5 cases of normal mucosa. A semi-quantitative index was used for immunoscore. Association between the expression of these markers and ECS status were analyzed using chi-square test. **Results:** Immunohistochemical results indicated that GGH and CA9 were upregulated in OSCC. High GGH and CA9 expression were significantly associated with ECS ($p < 0.05$). Combination of GGH and CA9 showed greater prognostic accuracy as compared to the individual markers. **Conclusion(s):** Both separately and in combination GGH and CA9 offer potential as prognostic biomarkers in OSCC and was thus reliable in segregating the OSCC cases based on ECS status.

KEYWORDS: carbonic anhydrase 9, extracapsular spread, gamma glutamyl hydrolase, OSCC