Preoperative assessment of CD44-mediated depth of invasion as predictor of occult metastases in early oral squamous cell carcinoma

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BACKGROUND
Epithelial-mesenchymal transition and cancer stem-like cells (CSC) have been linked to increased metastatic potential. We evaluated the prognostic impact of CD44, a CSC biomarker, on depth of invasion (DOI) and outcome in oral squamous cell carcinoma (OSCC).

METHODS
Using a multivariable logistic regression model, we evaluated in early OSCCs the relationship between CD44 expression at the invasive tumor front, DOI, sentinel lymph node biopsy, extension of nodal involvement, and survival. We also assessed whether CT and/or MRI could predict DOI preoperatively.

RESULTS
CD44 expression was associated with increased DOI (P = .018), worse disease-specific survival (P = .041) but not with positive sentinel lymph node biopsy (P > .05). Each millimeter increase in DOI was associated with a 31.1% higher risk for positive sentinel lymph node biopsy (95% CI: 5.8%-62.4%, P = .013) and with higher metastatic ratio (P = .015). Preoperative estimation of DOI by CT and/or MRI and histopathological DOI showed a strong correlation (P < .0001).

CONCLUSIONS
CD44 expression correlates with DOI, which predicts occult lymph node metastasis. Preoperative CT and/or MRI provides an accurate estimation of histopathological DOI. Both pieces of information gained preoperatively can help surgeons tailor their operation in regard to the surgical management of the neck.