



# Expression of claudin-1 and its relationship with lymphatic microvessel generation in hypopharyngeal squamous cell carcinoma

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**ABSTRACT.** We investigated the relationship between claudin-1 and micro-lymphatic vessel density (MLVD) by detecting claudin-1 and protein D2-40 expression in cancer tissue specimens obtained from 97 patients with hypopharyngeal squamous cell carcinoma (HSCC). We also explored the correlation between the expression of these proteins and clinical tumor stage, pathological grading, and clinical prognosis in the patients. Moreover, we studied the mechanism of lymph node metastasis in HSCC, thereby providing information for treating HSCC and inhibiting lymph node metastasis. We detected levels of claudin-1 and protein D2-40 expression in cancer tissue from 97 patients with HSCC and paratumor tissue from 90 patients by immunohistochemistry; we analyzed the correlation between markers and clinicopathological features by using the Pearson chi-square test and conducted survival analysis by the log-rank test. Claudin-1 expression was high in HSCC and was related to tumor differentiation and lymph node metastasis; Kaplan-Meier analysis showed

that claudin-1 expression was related to patient survival rate ( $P = 0.012$ ). There was a significant relationship between MLVD in the tissues adjacent to the carcinoma and the indices of histopathological grade, clinical stage, and lymph node metastasis. There was also a positive correlation between claudin-1 expression and MLVD. High expression of claudin-1 might induce the generation of tumor lymphatic vessels, which increases metastasis in the lymph node. Because claudin-1 is related to patient survival rate, it may be useful as a monitoring index for postoperative HSCC and might be a new target for treating the disease.

**Key words:** Claudin-1; D2-40; Hypopharyngeal squamous cell carcinoma