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**The occult metastasis in tongue cancer patients with clinically N0 neck**

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**Objective:** The purpose of this study is to analyze the incidence and clinical aspect of occult metastasis in patients who showed clinically N0 with tongue cancer and to find the relationship between clinic-pathologic findings and occult metastasis and also to find biomarker associated with occult metastasis by using immunohistochemistry.

**Materials & Methods:** Patient who visit and underwent surgery in Seoul National University Dental Hospital from 2000-2012 were included in this study. They were divided to 3 groups (Elective neck dissection group, watchful waiting with glossectomy group, total group). We investigated the incidence of lymph node metastasis, location of lymph node metastasis (Level), treatment method, depth of invasion, differentiation, T-stage, age, and sex. For immunohistochemistry, paraffin-embedded blocks of 41 cases of oral tongue cancer specimens were examined with antibody for VEGF-x, c-Met, Cox-2, Podoplanin, and ROR1 and analyzed.

**Result:** Male to female ration is 81:28. The mean age was 54.4 years. The incidence of occult metastasis in the END group was 18.3%. The incidence of neck recurrence in the WW group was 21.1% and the incidence of occult metastasis in the total group was 19.3%. T stage 2-4 group showed more occult metastasis than T stage 1 group (In the END group,  $p=0.017$ ). Thickness of greater than or equal to 3mm showed more incidence of lymph node metastasis (Total group,  $P=0.022$ ). Moderate/poor differentiation group showed more incidence of lymph node metastasis than well differentiation group. In the END group, occult metastasis was found in 4 patients at level I, 2 at level II, 4 at level III, and 1 at level IV. 2 patients displayed occult metastasis at multiple levels (level II, III), In the WW group, lymph node metastasis was found in 2 patients at level I, 2 at level II, and 1 at level III. 3 patients displayed lymph node metastasis at multiple levels (level II, III; 2 patients, level I, III, IV; 1 patient). Positive expression of VEGF-c and c-Met had significant relationship with occult metastasis in the Total group ( $p=0.043$  and  $p=0.009$ ). Positive ROR1 expression had significant relationship with occult metastasis in the Total group ( $p=0.003$ ), in the END group ( $p=0.013$ ).

**Conclusion:** This study showed relatively high incidence of occult metastasis in tongue cancer patient with N0 neck. Surgeon can determine whether END or WW by considering clinical, histological, immunohistochemical factors and close follow-up is important to obtain similar result between the WW group and END group.

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