

## Occult Node Metastasis in Early Tongue Squamous Cell Carcinoma

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### Abstract

Tongue squamous cell carcinoma was the most common malignancy in oral cavity, the management of clinically negative neck nodes (N0) remains controversial. From 2005 to 2012, patients with cT1-2N0 tongue SCC were included in this study, On univariate and multivariate analysis of RFS, tobacco, tumor stage, neck stage and differentiation were significantly associated with recurrences. On univariate analysis of DSS, tobacco and differentiation were associated with recurrence, but on multivariate analysis, tumor differentiation was the only significant factor with disease-caused death. Neck occult metastasis was not common in early tongue cancer, tumor differentiation was the most important prognostic factor.

**Keywords:** Prognostic factor; Oral cancer; Occult metastasis; Tongue cancer

### Introduction

The presence of neck metastasis was the most important prognostic factor in head and neck cancer [1,2], successful management of neck disease was considered one of the most important aspects of treatment. However, huge controversy existed regarding the treatment of the neck in patients with cT1-2N0 tongue cancer [3-6]. In this study, we aimed to evaluate the role of Selective Neck Dissection (SND) in early tongue Squamous Cell Carcinoma (SCC).

### Patients and Methods

China Medical University Review Board had approved our retrospective chart review.

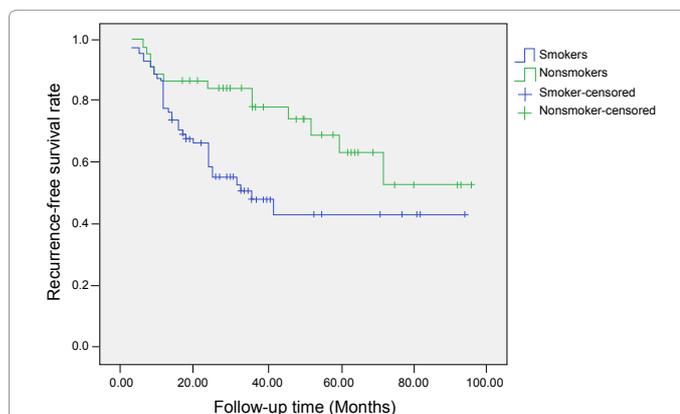
From 2005 to 2012, patients with cT1-2N0 tongue SCC were included in this study, all of their medical records were reviewed. Kaplan-Meier method and Cox model were used to analyze the Recurrence-Free Survival (RFS) rate and Disease-Specific Survival (DSS) rate (Figures 1-6). Statistical analysis was conducted by SPSS 13.0. A  $P < 0.05$  was considered significant.

### Results

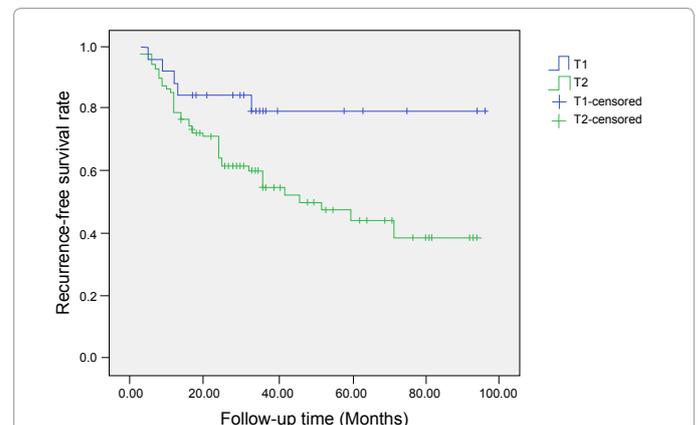
142 patients were treated for cT1-2N0 tongue SCC, but 25 patients were lost to follow-up, therefore our study consisted of 117

patients (74 male and 43 female), the mean age was 56.6 (range: 22-94) years. 72 (61.5%) patients had a history of tobacco use, and 36 (30.8%) patients had a history of alcohol consumption. 26 tumor were classified as T1 according to UICC 2002, 91 tumors as T2. 67 tumors were well differentiated, 27 tumors were moderately differentiated, and 23 tumors were poorly differentiated. 16 patients were proven pathologically neck node involved. 47 patients had recurrences (30 locally and 17 regionally). 26 patients died of disease, and the mean follow up time was 40.8 (range: 7-96) months.

On univariate and multivariate analysis of RFS, tobacco, tumor stage, neck stage and differentiation were significantly associated with recurrences. On univariate analysis of DSS, tobacco and differentiation were associated with recurrence, but on multivariate analysis, tumor differentiation was the only significant factor with disease-caused death.



**Figure 1:** Comparison of RFS rates between smokers and nonsmokers ( $P=0.009$ ).



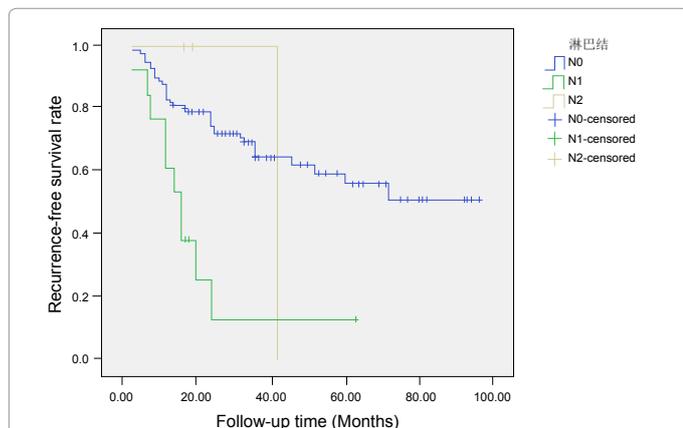
**Figure 2:** Comparison of RFS rates between T1 and T2 ( $P=0.03$ ).

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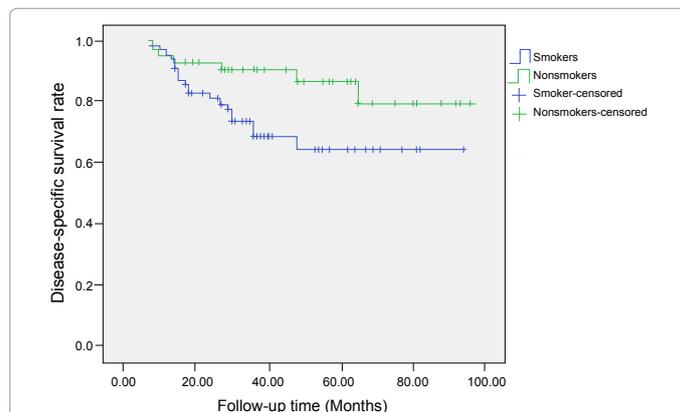
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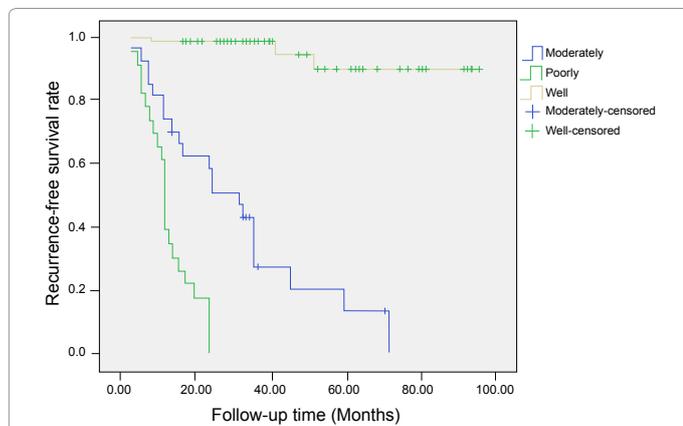
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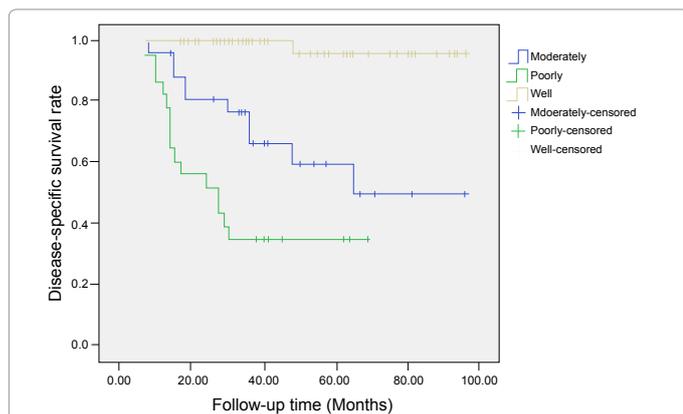
**Figure 3:** Comparison of RFS rates among different node stages ( $P < 0.001$ ).



**Figure 6:** Comparison of DSS rates between smokers and nonsmokers ( $P = 0.031$ ).



**Figure 4:** Comparison of RFS rates among different tumor differentiation ( $P < 0.001$ ).



**Figure 5:** Comparison of DSS rates among different tumor differentiation ( $P < 0.001$ ).

## Discussions

Neck nodal involved can decrease the survival by 50% [7], obviously SND is necessary for patients with clinically positive nodes. However, what can we do in patients with early tongue SCC and clinically N0 neck? The previous investigators [8] suggested if the incidence of occult metastasis greater than 20%, SND was urged. But we must view the cancer of the tongue as a separate entity as result of high nodal

metastasis. D’Cruz et al. [9] reported 37.5% of T1 lesions and 62.5% of T2 lesion were proved to be pathologically positive nodal metastasis.

Two random control trials had been conducted on cT1-2N0 tongue cancers. Fakhri et al. [10] compared radial neck dissection with observation on tongue T1 and T2 lesions, the investigators found between the two groups, no significant survival rate difference was found, however, the authors reported patients would have lower rates of metastasis neck if the depth of tumor was less than 4 mm; a similar study was applied in Yuen et al. [11], this study consisted of supra-omohyoid neck dissection group and observation group, the authors viewed whether there was a neck recurrence by ultrasonographic and clinical examinations, as a result, there were also no significant survival differences between the two groups. However, these two researches might be restricted by their limited sample number and methodology flaws.

In current study, we found the incidence of occult metastasis was 13.6%, which was apparently conflicted with other literature [12,13]. Vijayakumar et al. [12] reported the incidence of occult metastasis in early tongue cancers was 62.2%. This could be explained by the depth of most of tumors was less than 4mm. We could find occult regional metastases had a huge impact on recurrence survive. Therefore, Elective Neck Dissection (END) was advocated in general for most of early tongue cancers, but not for very superficial tumors. Also, END could help enable the accurate neck stage, it may benefit to better selection of patients who need postoperative adjusted therapy. Moreover, we detected another poor prognostic indicator was multiple levels of nodal involvement in most patients. Similar with what Vijayakumar et al. [12] reported, most of the involved lymph nodes were found to locate to level I, II, III, level IV was involved in less than 10% patients. However, it might be inadequate if supra-omohyoid neck dissection was done. In our follow up, 17 patients had regional recurrences, most of them occurred in pathologically positive neck.

Sentinel Lymph Node Biopsy (SLNB) may help to make a decision whether a END was needed. Ross et al. [14] performed 57 SLNBs in 48 patients with cN0 neck status and described 35% of the patients were upstaged, the rest were staged as sentinel lymph node negative. In these negative patients, only 1 patient occurred neck recurrence after a mean follow-up time of 18 months, this study showed the high sensitivity of SLNB. Similarity, Civantos et al. [15] performed SLNB on 140 cT1-2 patients, and the authors reported this technique predicted a histologically negative neck in more than 90% patients correctly.

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