

## Original Article

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# Role of Sampling Neck Dissection in Early Oral Tongue Carcinoma

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### Abstract:

**Background:** Carcinoma of oral tongue has a great potential for metastatic spread to neck nodes, which may not be clinically detected in early stage. To detect frequency of occult neck metastasis in clinically  $N_0$  patients with early oral tongue carcinoma (stage I & II) the study has done.

**Methods:** It was a 2 years cross sectional study among fifty patients in three tertiary care hospitals of Dhaka from 2016 to 2018.

**Results:** Majority of the patients were male (M:F=3:2) with age ranged 25 to 80 years. Among these patients 38(76%) were in  $T_1$  and remaining 12(24%) in  $T_2$  stage. Tongue ulceration was most common(84%) presenting feature followed by dysphagia(64%) and pain(52%). Only 32(64%) patients revealed no histopathological proved metastasis(true  $N_0$ ). Occult nodal metastasis was significantly common(83.33%) among male patients than females( $p<0.01$ ) and also common(72.22%) among  $< 50$  years age group( $p<0.01$ ). Sampling node positive was significantly more(66.67%) in  $T_2$  stage( $p<0.01$ ).

**Conclusion:** Regarding clinical, radiological and histopathological stages and stage migration of early carcinoma in oral tongue this study revealed significant differentiation among these methods. This study implies sampling neck dissection of sentinel neck nodes in early oral tongue carcinoma for management.

**Key words:** Sampling, neck dissection, tongue carcinoma

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### Introduction:

Head-Neck squamous cell carcinoma (HNSCC) accounts approximately for 5% of all human malignancy. Oral cancer represents the most frequent cancer in some regions of the world.<sup>1</sup> Carcinoma tongue is a common head and neck cancer particularly in this subcontinent. It is the second most common tumor in India<sup>2,3,4</sup> though it is the sixth most common cancer in USA.<sup>1</sup> Incidence of tongue cancer in India is the second highest in the world.

Treatment failure in the neck is hence a significant problem. Majority of these failures are due to presence of cervical node

metastases and untreated neck. As with other head neck carcinoma, cancer of oral tongue with nodal metastases reduces the prognosis and lowers the survival rate to 50% (Franceschi, 1993).<sup>5</sup>

According to this traditional “wait and see” policy, a cN<sub>0</sub> neck should not be dissected in cases of cT<sub>1</sub> T<sub>2</sub> N<sub>0</sub> OTSCC unless surgery involving the neck was being conducted for other reasons, such as for better access to the primary tumor, reconstruction requirements, or cases considered as being at high risk for developing cervical metastasis.<sup>6-8</sup>

Cancer of the head neck has a tendency to metastasize to regional lymph nodes rather than to spread hematogenously. Distant metastasis occurs uncommonly in patients without nodal metastasis in the neck.<sup>9</sup> However, it is not uncommon for patients that this usually occurs at a late stage of disease.

It is important to detect early metastasis in regional lymph nodes for treatment and prognosis. Many methods are used to detect cervical lymph node metastasis. Clinical examination, fine-needle aspiration cytology and advanced radiological and imaging techniques used include computed tomography, magnetic resonance imaging, ultrasound and positron emission tomography. Elective neck dissection (END) remains the current gold standard for both staging and treatment of the cN<sub>0</sub> disease. High incidence of occult metastasis is usually seen in carcinoma of tongue.<sup>10</sup> Currently available radiologic investigative tools have shown<sup>11,12</sup> some improvements in the detection of neck nodal metastasis, but their sensitivity ranges from 70% to 80%. Therefore, END may help in defining the status of the neck, removing undetectable metastasis, and determining the need for adjuvant therapy.

The present study was done to determine the incidence of occult metastasis in patients with T<sub>1</sub> and T<sub>2</sub> tongue cancer and to assess the pattern of involvement of cervical node metastasis in different lymph node levels which may evaluate the impact of tumor status on survival. This type of study reveals the frequency of true neck node metastasis in early tongue carcinoma using different investigative tools and comparing among them. This may help to formulate management protocol of early carcinoma of oral tongue.

#### **Methods:**

It was a cross sectional study of two years conducted in the department of otolaryngology and Head-Neck surgery of three tertiary care hospitals of Dhaka, Bangladesh - Bangabandhu Sheikh Mujib Medical University, Dhaka Medical College, Sir Salimullah Medical College from 2016 to 2018. Patients who were diagnosed as oral tongue carcinoma with no clinically detectable neck node (N<sub>0</sub>) and investigated radiologically (CT & MRI) and finally histopathological examination done for the suspected neck nodes (sentinel node) were enrolled in the study. Due to rareness of the disease, within a limited time frame and study place and management protocol also not followed by all the centers, only 50 patients were included in the study by purposive sampling technique.

After taking informed consent from the respondent, data were collected through a structured questionnaire and clinical examination with certain investigation, imaging and histopathological support. Information were collected on demographic variables, risk factors, clinical presentation, primary site of tumour with extension, etc.

#### **Statistical Analysis:**

Collected data were coded, kept confidential and processed and analyzed using SPSS

version 16.0 and Stigma stat 3.5. The test statistics used for analysis of data were z test ad chi squared test or Fisher's exact test. For any analytical test the level of significance was 0.05 and p value < 0.05 was considered significant.

### Results:

Among 50 patients with early stage oral tongue carcinoma (T1/T2) with clinically N<sub>0</sub>, 30 males and 20 females, age ranged 25 to 80 years with mean 57±11.23 years were investigated. Among those 38(76%) were in T1 and remaining 12(24%) were in T2 tumour stage. All patients had clinically negative neck nodes. Of them, 7(14%) had preoperatively radiologically detected susceptible metastatic neck nodes. All patients had undergone partial glossectomy with selective (supraomohyoid) neck dissection for sentinel node sampling. These neck node sampling revealed histologically positive for metastatic carcinoma among 18(36%) patients.

In relation to gender and age it is found that both are significantly associated with early tongue carcinoma, details in table I.

Regarding occupation of the patient most of the patients belonged to manual workers (54%), farmers (36%), garment workers (10%) and daily laborers (8%). Next to them were retired or current service holders (26%) and then house wives (20%). Most of the patients (88%) with early oral tongue carcinoma had the habit of taking raw tobacco and betel nut chewing. 56% patients had the habit of smoking and most of them were male.

In Table II it is described that there is no significant difference between radiological and histopathological sampling node (p=0.659). But there was statistically significant difference with clinical examination (p<0.001) Table III.

Tongue ulceration was most common presenting feature (84%), next to this dysphagia (64%) and pain in the tongue (52%). The commonest involved site of carcinoma was in lateral border of the tongue (74%). Ulcerative lesion was more common (56%), exophytic, fungating and infiltrative was 20%, 16% and 8% respectively.

**Table-I :**

*Positive node sampling in relation to gender and age with early tongue carcinoma (n=50)*

Variables	True N <sub>0</sub>	Occult N+ve	Total	P value
<b>Gender</b>				
Male	15(46.87%)	15(83.33%)	30(60%)	0.023
Female	17(53.13%)	3(16.67%)	20(40%)	
<b>Age groups</b>				
<50 years	11(34.38%)	13(72.22%)	24(48%)	0.001
>50 years	21(65.62%)	5(27.78%)	26(52%)	

**Table II :**

*Distribution of radiological & imaging +ve and histologically +ve sampling nodes in N<sub>0</sub> oral carcinoma (n=18)*

T-Stage	Imaging +ve Node	Pathological +ve Node	Total N <sub>0</sub>	P value
T1	5(13.16%)	10(26.31%)	38(76%)	0.659
T2	2(16.67%)	8(66.67%)	12(24%)	

**Table III**  
*Stage migration of early oral tongue carcinoma (among clinical, radiological and histopathological findings) (n=50)*

Stage	TNM	Clinically N0	Radiologically suspected +ve	Histologically +ve	P value
Stage - I	T <sub>1</sub> N <sub>0</sub> M <sub>0</sub>	38(76%)	33(86.6%)	28(73.7%)	0.001
Stage- II	T <sub>2</sub> N <sub>0</sub> M <sub>0</sub>	12(24%)	10(83.3%)	4(33.3%)	
Stage- III	T <sub>1/2</sub> N <sub>1</sub> M <sub>0</sub>	0(00%)	7(14%)	18(36%)	

### Discussion:

The presence of metastasis in the neck nodes has been shown to be the single most important adverse prognostic factor<sup>13</sup> with overall 5 years survival dropping from 82% to 50%, as a result of regional lymphatic involvement.

Among the patients in the current study male were predominant. Total 30(60%) male and 20(40%) females (M:F= 1.5:1). In a different study in Pakistan,<sup>4</sup> it was 1.6:1 and in India<sup>2</sup> was 1.5:1. Incidence of tongue cancer is second highest in the world. Among males the age adjusted rate is as high as 14/100,000 per year in Ahmedabad while among females it is 74/100,000 in Mumbai. In Trivandrum the incidence of tongue cancer is 5.2/600,000 among males and 2.4/100,000 among females.<sup>3</sup> Carcinoma of tongue is a disease of the middle aged and elderly, with an equal gender incidence. Study in Japan<sup>14</sup> showed 1.53:1 and in another study<sup>15</sup> 1.8:1 (Okamoto, 1988). In Korea this ratio was 6:1.<sup>16</sup> Conversion from N<sub>0</sub> node to metastasis positive node (histological sampling) had been found significantly common (83.33%) among the male patients than females (p=0.026). Males are more smoker, tobacco chewer and alcoholic than females.

Age of the patients ranged from 25 years to 80 years (mean 57). Highest frequency was in 4<sup>th</sup> decade (36%). Study in Pakistan<sup>4</sup> the

age of the patients ranged from 25 to 78 years (mean 52.6), in India<sup>2</sup> ranged from 22 to 75 years, in Japan<sup>17</sup> it was 24 to 86 years (mean 59.3) and 23 to 76 (mean 53.3) years.<sup>18</sup> In Brazil it was 37 to 83 (mean 56.2) years. In all series of age ranges were more or less between 3<sup>rd</sup> to 8<sup>th</sup> decades and mean ages were around 50 years. Oral carcinoma is more common around 5<sup>th</sup> to 6<sup>th</sup> decade. N<sub>0</sub> node positive (occult lymph node metastasis) was significantly common (77.22%) among the patients aged less than 50 years of age (p=0.023%).

This study showed 36% of patients were farmer and 20% patients are homemakers. Most of the patients were of low paid manual workers, all of them had the habit of taking raw tobacco, and smoking habits with poor oral hygiene. All are the important factors for tongue carcinoma.

Most of the patients were practicing betel nut with raw tobacco chewing (54.17%) and smoking (72.41%) more than 20 years. This study is similar with other study findings.<sup>19</sup>

Ulcerative lesion was found common in early oral tongue carcinoma.<sup>14</sup> This is also similar with the studies by Ozeki et al.<sup>19</sup> They found ulcerative lesion in 60% cases and exophytic lesion in 25% cases. Probably the reason is that tongue is a mobile organ. So any malignant growth that has less blood supply tends to become ulcerative.

Regarding clinical evaluation and radiological evaluation Close et al.<sup>20</sup> and hao et al.<sup>21</sup> 2000 found significant difference between clinical evaluation and radiological evaluation (CT Scan or MRI) regarding nodal metastasis. In the study, 7(14%) cases were detected as radiologically susceptible metastatic neck nodes. Close et al.<sup>20</sup> and Hao et al.<sup>21</sup> also found that there are significant difference between clinical and radiological evaluation.

Following selective supraomohyoid neck dissection, neck node sampling revealed histologically positive for metastasis only in 18(36%) patients, 32(64%) patients revealed no metastasis histologically (true N<sub>0</sub>). Sampling node positive found more in T<sub>2</sub> stage (66.67%) of the carcinoma of oral tongue. The proportion of sampling node positive in the two different tumour stage (T<sub>1</sub> & T<sub>2</sub>) was significantly different (p<0.001). This proves that the tumour size and depth of the tumour have important role in lymph node metastasis, larger tumour has more early nodal metastasis.

In this study comparison among different types of metastatic neck node evaluation showed radiologically 7(14%) were suspected as node positive and finally 18(36%) were found histologically positive for metastasis. This study showed significant difference between clinical, radiological and histological staging (p<0.001).

#### Limitation of the study:

This study may not reflect the real situation in our country due to time constrain and limited number of sample. Advanced technology is costly and in the absence of these investigations, staging of tongue carcinoma may not be accurate.

#### Conclusion:

A number of patients had histologically detected micro metastasis in the regional

lymph nodes in clinically N<sub>0</sub> patients. This was significantly common among the male patients, in stage T<sub>2</sub> of carcinoma and patients aged below fifty years. So it has been highly recommended for sampling neck dissection of the sentinel neck nodes in all cases of early stage (stage I and stage II) oral tongue carcinoma management.

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