

## **Role of elective neck dissection in the management of early oral tongue carcinoma**

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### **ABSTRACT:**

**Objective:** To evaluate the efficacy of elective neck dissection as a therapeutic as well as diagnostic procedure for early oral tongue cancer patients with N0 neck. **Methods:** This observational, retrospective study was carried out during the period of July 2012 to December 2014, among the patients admitted in the department of ENT Oncology of National Institute of Cancer Research & Hospital (NICRH), Mohakhali, Dhaka. For this study, patients of early oral tongue cancer (T1 & T2) of all age & sex, which were with clinically N0 neck, were included. Detailed history taking, thorough clinical examination of oral cavity, neck and preoperative punch biopsy from the tongue lesion was done in every case. Wide local excision or hemiglossectomy with proper margin clearance in all cases and elective neck dissection was done in selective cases. Histopathological examination of excised primary tongue lesion & neck nodes were also done in all cases. **Results:** There were 30 patients in this study, including 14(46.66%) with T1 and 16(53.33%) with T2 oral tongue carcinoma. The first site of tumour recurrence was regional that is 6 (20%), both regional & local were 1(3.33%) and local recurrence was 2(6.66%). Among the 30 N0 neck patients, who had done neck dissection (18 patients), regional recurrence was seen in 2 cases (11.11%) and patients who were under observation (12 patients), recurrence was seen in 5 cases that is 41.66%. The recurrence is significantly high in patients who were in observation. At the same time occult node positive disease was found interestingly in 33.33% cases. So elective neck dissection has the advantage of more accurate pathological diagnosis or staging of neck. **Conclusion:** Elective neck dissection significantly reduces the regional recurrence in case of management of early oral tongue cancer. At the same time it is also a very important diagnostic tool.

**Key words:** Occult node positive disease, oral tongue cancer, elective neck dissection.

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### **INTRODUCTION:**

Oral and oropharyngeal carcinoma is the sixth most common cancer in the world. Of which anterior 2/3 rd of tongue is the most common site-accounting for about 40% of the cases.<sup>1</sup> It is well known that malignant lesions in tongue have a strong propensity to develop neck metastasis which are observed even in early stages of disease. Oral

tongue carcinoma is also documented for its subclinical nodal metastasis in early stage.<sup>2</sup>

There is high incidence of occult metastasis even from early carcinoma (T1 & T2) of oral tongue. It can be seen in over 30% of patients with early carcinoma.<sup>3</sup> The presence of occult lymph node metastasis reduces overall survival by 30% to 50%.<sup>4</sup>

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The treatment of neck in the early stage node negative oral tongue is controversial, both elective neck dissection and “watchful waiting” have their proponents.<sup>5</sup>

It is widely accepted that management of neck relapse after a period of observation is more difficult due to increased incidence of high stage neck disease along with extracapsular spread. So some form of treatment to the neck should be given in clinically N0 cases of early oral tongue cancer at the time of primary tumour management.<sup>6</sup>

Elective neck dissection has been advocated as a routine management protocol of N0 neck of early oral tongue carcinoma by many surgeons.<sup>7</sup>

Many retrospective analysis concluded that elective neck dissection is very effective procedure in the management of early oral tongue carcinoma (T1 & T2). At the same time elective neck dissection has the advantage of more accurate pathological staging of the neck compared to all available radiological investigations. The pathological information can guide the subsequent use of postoperative radiotherapy for a pathologically node positive neck.<sup>2</sup>

So elective neck dissection may be both diagnostic and therapeutic. It helps in defining the status of the neck, removal of undetectable metastasis and also the need for adjuvant therapy.<sup>8</sup>

**METHODS AND MATERIALS:**

The objective of the study was to evaluate the efficacy of elective neck dissection as a diagnostic and therapeutic procedure for N0 neck of early carcinoma of oral tongue. This retrospective study was carried out on 30 patients of all age and sex of early oral tongue cancer (T1 & T2) with clinically N0 neck. This was done on only admitted patients in the department of ENT Oncology of NICRH between July 2012 and December 2014.

The exclusion criteria were, tumour more than 4cm in greatest diameter, tumour crossing midline or reaching midline, patient who were given neo-adjuvant chemotherapy, patients with clinically

palpable cervical lymph nodes and carcinoma tongue as a second primary in oral cavity.

Meticulous history taking, thorough clinical examination of oral cavity, neck & preoperative punch biopsy from the tongue lesion was the mainstay of the selection of the cases.

Wide local excision or hemiglossectomy with proper margin clearance was performed for the primary tumour. Post-operative histopathological examination of primary tongue lesion and neck nodes were done in all cases. Imaging of neck was done in selective cases. In all cases follow up was done for a variable period of 3 months to 30 months. During follow up, meticulous clinical examination, history taking & CT scan were done. Postoperative radiotherapy was given in all 30 cases.

**RESULTS:**

**Table I: Age & Sex distributiOn**

Age group	No. of patients	Male	Female	Percentage
<40	3	3	0	10%
41-50	7	3	4	23.33%
51-60	16	10	6	53.3%
61-70	4	3	1	10%

**Table II: Residence of the patients**

Residence of the Patients	No. of the patients	Percentage
Rural area	21	70%
Urban area	9	30%

**Table III: Habitat of the patients**

Name of the habitat	No. of the patients	Percentage
Smoking	15	50.00%
Chewing betel nut	16	53.33%
Other form of tobacco	7	23.33%
Alcohol	2	6.66%

**Table IV: Presentation of symptoms**

Clinical Frequency	Presentati0n Percentage
Soreness/Irritation of tongue 6	20%
Painless ulceration 17	56.66%
Foul breath 14	46.66%

Dysphagia 8	26.66%
Painful ulceration 3	10.00%
Spilling of blood 6	20.00%

**Table V: Duration of the symptoms**

Duration of symptoms	No. of the patients	Percentage
1-2 months	4	13.33%
2-3 months	5	16.66%
3-4 months	10	33.33%
4-5 months	7	23.33%
5-6 months	4	23.33%

**Table VI: Number of patients according to tumour size**

Tumour size	No. of the patients	Percentage
T1	14	46.66%
T2	16	53.33%

**Table VII: Types of management along with hemiglossectomy**

Types of management	No. of the patients	Percentage
Elective neck dissection	18	60%
Observation	12	40%

**Table VIII: Frequency of occult node positive disease**

No. of pts. Underwent END	Pathologically neck node positive disease	Percentage
18	6	33.33%

END- Elective Neck Dissection

**Table IX:** Period of follow up of the patients

Follow up period	No. of the patients	Percentage
3 month-6 months	4	13.33%
6 months-12 months	4	13.33%
12 months-18 months	10	33.33%
18 months-24 months	7	23.33%
24 months-30 months	3	10.00%

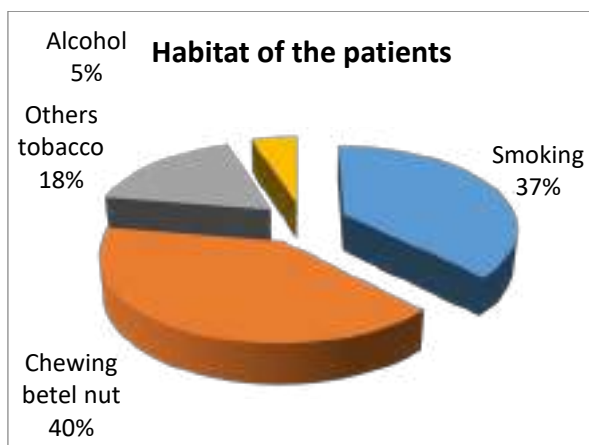
**Table X:** Types of recurrence

Types of recurrence	No. of patients	Percentage
Regional recurrence	6	20.00%
Both regional & local recurrence	1	3.33%
Only local recurrence	2	6.66%

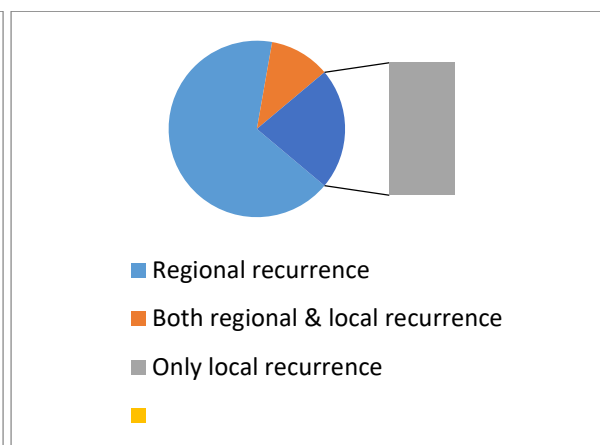
**Table XI:** Regional recurrence in both groups of patients

Group of patients	No. of patients	No. of recurrence	Percentage
Pts. underwent END	18	2	11.11%
Pts. Under observation	12	5	41.66%

END- Elective Neck Dissection



**Fig 1:** Habitat of the patients.



**Fig 2:** Types of recurrence

**DISCUSSION:**

Oral cancer is one of the commonest cancers in Bangladesh, India, Pakistan & Srilanka. Of which anterior two-third of the tongue is the most common

site of the oral cancer accounting for about 40% of the cases.<sup>9</sup>

It is more common in male who usually present in the 6<sup>th</sup> & 7<sup>th</sup> decade although the incidence in young people seems to be increasing.<sup>10</sup> Surveillance

epidemiology and end result (SEER) of United State reported that the majority of oral cancer patients were over 45 years of age with a median age of diagnosis was 62 years.<sup>11</sup> In our series highest incidence of disease was seen in 51-60 years with a male predominance.

In our study a total number of 30 cases of early oral tongue cancer, admitted in the Department of ENT Oncology of National Institute of Cancer Research & Hospital, Mohakhali, Dhaka, were studied during July 2012 to December 2014, In this study, the age range is from 40 to 70 years, of which majority of patients belongs to age group 51 to 60 years. In a study by Qi-Gen F, mean age of presentation was 41.5 years with range of 22 to 84 years. That study included 50 males and 10 females out of 60 patients.<sup>12</sup> Whereas we found 19 males and 11 females out of 30 patients of which majority was from the rural area (21 out of 30).

Among the 30 patients of early oral tongue cancer of our study, 15 were smoker, 16 had habit of chewing betel nut, 7 used other forms of tobacco and only 2 were alcohol abuser. Different study showed out of 117 patients 72 had a history of different type of tobacco use and 36 patients had a history of alcohol consumption.<sup>13</sup>

In our study usual presentation of symptoms were painless ulceration (56.66%), foul breath (46.66%), dysphagia (26.66%). In one study the commonest symptoms was also painless ulceration of tongue.<sup>13</sup>

In our series maximum duration of symptoms was 3-4 months. In a study by Kyota shiga, mean duration of symptoms was ranged from 1 month to 6 months with a mean of 6.5 months.<sup>14</sup>

Of our 30 patients of early oral tongue cancer 14 were T1 tumour size (45%) and 16 were of T2 tumour size. Another study by Chaudhury N, showed out of 36 patients 16 were of T1 tumour size and 20 were of T2 tumour size.<sup>15</sup>

In our study, along with hemiglossectomy, elective neck dissection was done in 18 cases and 12 patients were kept in observation. After elective neck dissection histopathological examination was done in all cases. Of which 6 cases (out of 18) were

pathologically positive that is 33.33%. One study of Pakistan showed rate of occult lymph node metastasis 32%.<sup>5</sup> Another study of India showed occult metastasis in 23.12% of cases.<sup>15</sup>

After the surgery our average follow up period of the patients was 16.5 months. Among that 30 patients regional recurrence was seen in 7 patients, of which 2 (11.11%) were in neck dissection group and 5 (41.66%) were in patients who were under observation. One Japanese study showed 3 out of 7 patients (43%) who underwent elective neck dissection had a lymph node metastasis. On the other hand 4 of the 6 patients (64%) who did not undergo elective neck dissection had a recurrence in the neck.<sup>18</sup>

Among the study group total recurrence was seen in 9 patients. Out of that patients we found regional recurrence in 6 cases (20.33%), local recurrence in 2 cases (6.66%) and both regional & local recurrence in 1cases (3.33%). Prashant Sharma et al. of India showed out of 60 patients recurrence was seen in 11 patients where 1 patient had both regional & local recurrence, 2 patients had regional only recurrence and rest 8 patients had local recurrence.<sup>13</sup>

Where in a study of Hongkong, 35 patients were in observation group of which regional recurrence was seen in 11 patients (31%). At the same time out of 36 patients who underwent elective neck dissection, nodal recurrence was seen in only 2 patients, that is in 6% cases. (Chi- square test  $P=0.006$ ).<sup>16</sup>

In the management of early oral tongue cancer, the aim of curative surgery is to excise the carcinoma with an adequate margin of normal tissue. We all know that metastasis to cervical neck nodes occur more frequently from tongue carcinoma than any other site of oral cavity.<sup>5</sup>

Nodal status at the presentation is the most important prognostic factor. If the nodes are affected than the chance of cure falls by half. Neck nodal involvement can decrease the survival by 50%.<sup>18</sup> One important term in this topics is occult metastasis or micrometastasis- which is defined as

histological involvement of lymph nodes with no clinical or radiological evidence of metastasis.<sup>5</sup>

In the early lesions of tongue that is T1 & T2- usually surgery or radiotherapy is offered to primary site. Interestingly if elective neck dissection- supraomohyoid or extended supraomohyoid neck dissection is done –a high incidence of occult metastasis is usually seen. It can be as high as 42%.<sup>19</sup> In our study it is 33.33%. So elective neck dissection has also the advantage of more accurate pathological diagnosis or staging of neck compared to all available radiological investigations.<sup>12</sup>

Many study showed that in the management of early oral tongue carcinoma, regional recurrence is the commonest cause of failure after surgical treatment; elective neck dissection significantly reduces mortality & morbidity due to regional recurrence. Several reports have described that the survival rate of “watched” patients was worse than that of patients having elective neck dissection.<sup>19</sup>

In our study during follow up, regional recurrence was seen in 5 patients (41.66%) out of 12 in those who were in observation group and only in 2 patients (11.11%) out of 18 in whom elective neck dissection was done. One study of Japan Kiyoto Shiga et al found neck node metastasis 3 of 7 patients (43%) who underwent elective neck dissection, on the other hand 4 of the 6 patients (67%) who did not undergo elective neck dissection at the first surgery.<sup>14</sup>

The result of our study was tested by Z test, where  $Z = 1.96$ ,  $P < 0.05$  and it has been found that recurrence is significantly higher in patient who were in observation.

So we can say that elective neck dissection is needed for the patients of early oral tongue cancer to reduce the rate of recurrence and to improve the prognosis of the patients. At the same time besides the therapeutic role, we can see that elective neck dissection has important diagnostic role which cannot be replaced easily by the available pre operative radiological screenings.

Elective neck dissection helps defining the status of the neck, removal of undetectable neck disease and also determines the need for appropriate adjuvant therapy.

#### CONCLUSION:

Along with wide local excision with proper margin clearance – elective neck dissection significantly reduces the morbidity and mortality. Elective neck dissection is a very important therapeutic as well as diagnostic procedure in the management of early oral tongue carcinoma.

Despite our considerable efforts, there are some limitations of this study which include, small sample size and relatively short duration of the study. For further evaluation long term study with a larger sample should be taken.

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