



**ORIGINAL RESEARCH PAPER**

**ENT**

**“Comparative study between Elective Radical neck dissection and Selective Neck Dissection in Malignancy of anterior Tongue T1/T2/T3 With N-Zero Neck”**

**KEY WORDS:** .elective radical neck dissection, selective neck dissection, malignancy tongue

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**ABSTRACT** Oral cancer is most common cancer in men in India and tongue cancer is third most common in oral cavity<sup>1</sup>. This study was designed to perform the evaluation and compare the outcome of radical neck dissection and selective neck dissection(supra omohyoid neck dissection) in tongue cancer in stage T1/T2/T3 with clinically N –Zero Neck, to see the presence of positive nodes in clinically N-Zero neck, to compare incidence of recurrence of metastatic lymph node, to see the effect of degree of differentiation on out come and micro-metastasis.

**INTRODUCTION:** Tongue cancer is particularly common in developing world, mostly in older male. Approximately 90% of tongue cancer are squamous cell carcinoma, in remaining 10% other types are Teratoma, Adenocarcinoma, Melanoma, Lymphoma and sarcoma.<sup>2</sup>

Squamous cell carcinoma is seen typically on lateral part of anterior two third of tongue usually as lump or ulcer that is white, red or mixed white and red .Any single lesion persisting more than three weeks should be regard with suspicion.

**STUDY DESIGN:** This is a prospective, analytical, longitudinal and comparative study to be perform in Department of Otorhinolaryngology, MBS Hospital, Medical College Kota, Rajasthan. 50 patients of age group 20 to 80 yrs of both sexes, are assigned for comparative study between elective radical neck dissection and selective neck dissection in malignancy anterior tongue in stage T1/T2/T3 with clinically N-Zero Neck.

**KEY POINTS OF THE OBSERVATIONS ARE :**

The cases selected for this study were subjected history, clinical examination including computed tomography (CT), ultrasound neck, xray chest Biopsy was taken from site of primary tumor in every patient for histopathological evaluation, degree of differentiation, and histological grading of malignancy.

**INCLUSION CRITERIA:-**

1. Patients of squamous cell cancer of with clinically N - zero neck requiring surgery as the primary mode of treatment.
2. Absence of radiological evidence of cervical lymph node metastasis.

**EXCLUSION CRITERIA :-**

1. Evidence of distant metastasis.
2. History of irradiation of Head and Neck Cancer.
3. Previous surgery for Head and Neck Cancer.
4. Pregnant women.

The patients were assigned into two equal groups (n=25); Group A includes patients were undergone radical neck dissection with partial glossectomy with 2 cm surgical margin of resection from the border of the tumour and Group B patients were undergone selective neck dissection with partial glossectomy with 2 cm surgical margin of resection from the border of the tumour. Alternate patients were assigned the groups.

The result of clinical examination, radiological imaging was compared with histopathological results of neck dissection specimen, the presence and absence of metastatic lymph nodes their number, size, and level in the neck were noted. Positive nodes were correlated with the size, site, thickness and differentiation of the primary tumor.<sup>37</sup>

Data collected was statistically analyzed. Chi square test was used to determine statistical significance of histopathological findings.

**OBSEVATION:**

The mean age in Group A (Radical neck dissection) was 50.4 years and in Group B (Selective neck dissection or supra omohyoid neck dissection) was 51.4 years. There were 21 (42%) farmer patients, 11(22%) were house wife, 6(12%) were labourer, 4(8%) were driver, 3(6%) shopkeeper, 2(4%) were teacher, 1(2%) was tailor.

It was observed that in most of cases were tobacco with smoking(44%),tobbaco pouch chewing(38%), tobacco with smoking and alcohol(16%), tobacco containing tooth powder and smoking played a significant role.

Pain(100%) and ulcer (100%) were the most frequent symptoms, followed by other complaints like increased salivation(34%), burning sensation(42%), bad odour(54%), dysphagia(40%) and referred earache (4%), change in voice(54%) and Restricted tongue movements in 58% patients. study of total 50 patients ulcerative type ulcer most common 44 (88%), followed by infiltrative 4 (8%) and Exophytic 2 (4%).

**DISTRIBUTION OF PATIENTS ACCORDING TO STAGE OF TUMOUR TABLE NO.1**

| Stage | Male | Female | Total |
|-------|------|--------|-------|
| T1    | 18   | 04     | 22%   |
| T2    | 15   | 06     | 21%   |
| T3    | 06   | 01     | 07%   |

Maximum patients were of stage T1, 22 patients (44%), 21 patients were of stage T2 (42%) and 7 patients were of stage T3 (14%).

**CORRELATION OF MICRO METASTASIS WITH T-STAGE OF TUMOUR TABLE NO-2**

| Stage | Total no. of patients | Micro metastasis absent | Micro metastasis present | % incidence of occult metastasis |
|-------|-----------------------|-------------------------|--------------------------|----------------------------------|
| T1    | 22                    | 18                      | 4                        | 18.18%                           |
| T2    | 21                    | 11                      | 06                       | 28.57%                           |
| T3    | 07                    | 04                      | 03                       | 42.85%                           |

Micro metastasis were present in 3(42.85%) patients of stage T3, 6(28%) patients of stage T2 and 4(18%) patient of stage T1. Association of micro metastasis with T stage of tumor was not statistically significant. (p>0.8).

**CORRELATION OF MICRO METASTASIS WITH DIFFERENTIATION OF TUMOUR:- TABLE-3**

| Differentiation     | Total no. of cases | Micro metastasis absent | Micro metastasis present | Percent age |
|---------------------|--------------------|-------------------------|--------------------------|-------------|
| Well differentiated | 32                 | 18                      | 07                       | 64%         |

|                                  |           |           |           |            |
|----------------------------------|-----------|-----------|-----------|------------|
| <b>Moderately differentiated</b> | <b>15</b> | <b>12</b> | <b>04</b> | <b>30%</b> |
| <b>Poorly differentiated</b>     | <b>03</b> | <b>01</b> | <b>02</b> | <b>06%</b> |

In study of 50 patients of clinically N-zero tongue cancer, 32(64%) patients were histopathologically well differentiated, 15(30%) were moderately differentiated and 3(6%) patients were poorly differentiated carcinoma. Micro metastasis were present in 7 patients of total 32 patients of well differentiated carcinoma, 4 patients of total 15 patients of moderately differentiated carcinoma and 2 patient of total 3 patients of poorly differentiated carcinoma. "p" value was 0.8, the association between differentiation of tumor and micro metastasis was not significant. Neck micro metastasis were present in 5 (26%)out of 19 patients with tumor thickness less than 4mm. Micro metastasis were present in 8(34%)out of 3 patients with tumor thickness more than 4mm.

Micro metastasis was seen in 26% of patients in our series. Clinical palpation was unable to detect positive nodes in these patient.

**COMPARISON OF HOSPITAL STAY IN RND V/S SND NECK DISSECTION**  
**TABLE NO.4**

| Hospital stay (in days) | RND | SND |
|-------------------------|-----|-----|
| 8-10                    | 0   | 14  |
| 10-13                   | 6   | 9   |
| 13-16                   | 17  | 0   |
| 17 and above            | 2   | 0   |

14 patients of Selective neck dissection (supra omohyoid neck dissection) stayed in the hospital for 8-10 days, 9 patients stayed for 10-13 days while in the Radical neck dissection 6 patients stayed for 10-13 days,17 patients stayed for 13-16 days and 2 patients for 17 and above days in ENT WARD. Mean stay duration for Radical neck dissection was 12.52 and for Selective neck dissection (supra omohyoid neck dissection) was 8.17 days.

Out of 25 patients who underwent Radical neck dissection 9 patients developed infection,2 developed haemetoma,1 seroma,7 shoulder and arm dysfunction,2(8%) nodal recurrence and 2 developed flap necrosis.

The other 25 patients treated with Selective neck dissection (supra omohyoid neck dissection) 3 developed infection at wound site, one hematoma and nodal recurrence was seen in 3(12%) patients.

**DISCUSSION**

Clinical examination plays a key role in disease staging till now. Sako K (1964)<sup>3</sup> has emphasized that metastatic node up to 12 mm are missed by palpation. Nodes of 12-15 mm can be palpated only if they are superficial and in nodes of more than 15 mm differentiation between solitary lesion and multiple confluent lesions is very difficult. In addition to localization, size and spread of the primary tumour, the existence and the extent of the lymph node metastasis determine the prognosis of affected patients and influence treatment modalities.

The modalities available to detect metastatic lymph nodes are clinical examination, ultrasound, computed tomography, magnetic resonance imaging and scintigraphy. In most institutes throughout the world, the neck is staged mainly by palpation but it is reported to have high false positive and false negative result.

All the patients were subjected to partial glossectomy with 2 cm surgical margin of resection from the border of the tumour. In the present study majority of patients ranged between age group 41-50 years (34%) with mean age 50.4 years. There was a marked male preponderance with 3.54:1 male female ratio.

There were 21 (42%) farmer patients,11(22%) were house wife,6(12%) were labourer,4(8%) were driver,3(6%) shopkeeper,2(4%) were teacher,1(2%) was tailor.

In this study 37 (74%) poor and 13(26%) were have good oral hygien.It is observed that in most of cases tobacco chewing,tobacco with smking and alcohol, tobacco containing tooth powder and smoking played a significant role in aetiological factor. Pain( 100%) and ulcer(100%) are the most frequent symptoms, followed by other complaints like increased salivation, burning sensation, bad odour, dysphagia and reffered earache.In this study ulcerative type ulcer most common 44(88%),followed by infiltrative4(8%) and Exophytic2(4%).

In this study 14 patients of selective neck dissection stayed In the hospital for 8-10 days,9 patients stayed for 10-13 days while in the 6 Radical neck dissection patients stayed for 10-13 days,17 patients stayed for 13-16 days and 2 patients for 17 and above days in ENT WARD. Mean stay duration for Radical neck dissection 12.52 days and for selective neck dissection was 8.17 days.

Palpation failed to detect micro metastasis in 26% patients.

In our study group, total 13 patients out of 50 patients, showed presence of micro metastasis. Incidence of micro metastasis in our study was 26%, this was comparable to 24% reported by Hosal AS et al<sup>1</sup> and 25% given by Byers RM et al<sup>2</sup>. Watkinson JC et al<sup>6</sup> also reported a high incidence of micro metastasis 29%.

In literature there are many studies reporting high incidence of micro metastasis in tongue cancer. High incidences were reported by Yuen AP et al 36%, Haddadin KJ et al<sup>7</sup> 38%, Keski H et al 34% and Teichgraeber et al 35%.

Stage wise distribution of patients in our study was 44% in T1, 42% in T2 and 14% in T3. In present study the incidence of micro metastasis in tongue carcinoma was 18.18% in T1, 28.57% in T2 and 42.85% in T3 stage. In a study reported by Yuen AP et al<sup>8</sup> the incidence of micro metastasis was 19% in T1 and 45% in T2 stage of squamous cell carcinoma of tongue.

Total patients with tumour thickness more than 4mm was 31(62%) and less than 4mm was 19(38%), out of total 50 patients of carcinoma tongue.

In a study on squamous cell carcinoma of oral cavity and oropharynx by Ellabban M.A.et al<sup>9</sup> showed no clear value for tumor infiltration and the risk for micro metastasis. Keski santti H et al<sup>10</sup> considered tumor thickness as a prognostic factor to find out the patient with high risk of micro metastatic disease. When tumor thickness exceeded 4mm, the incidences of micro metastasis varied from 38-70%. Asakage and O-charoenrat<sup>11</sup> showed that patients with tumor thickness more than 4mm are at higher risk cervical micro metastasis in oral tongue squamous cell carcinoma. In our study the incidence of micro metastasis was 26.31% for tumor thickness less than 4mm and 34.78% for thickness more than 4mm for tongue carcinoma.

Patients distribution in our study according to the differentiation of tumor was 32 (64%) well differentiated, 15 (30%) moderately differentiated and 3 (6%) poorly differentiated carcinoma of tongue.

A study by Liu TR et al reported the incidence of well differentiated N-zero oral tongue carcinoma was 79% and another 20.6% were moderately or poorly differentiated. The incidence of well differentiated tongue carcinoma was 58%, moderately differentiated 38% and poorly differentiated squamous cell carcinoma was 4% reported by Yuen AP et al<sup>12</sup>. lype EM et al repored the incidence of well differentiated oral carcinoma was 48.8%, moderately differentiated 42% and poorly differentiated 2.35%. In our study the overall incidence of well differentiated squamous cell carcinoma was 64%, moderately differentiated 30% and poorly differentiated 6% in carcinoma of tongue.

In our study the incidence of micro metastasis was 14% in well differentiated, 8% in moderately differentiated and 4% in poorly differentiated squamous cell carcinoma of tongue.

There were 2(8%) patients in the Radical neck dissection group and 3 (12%) patients in the selective neck dissection group who developed nodal recurrence without associated local recurrence or distant metastasis. The 1-year neck control rate (NCR) rate was 92.6% for the selective neck dissection (supra omohyoid neck dissection) group and 93.4% for the Radical neck dissection group (in favor of Radical neck dissection,  $P = 0.108$ ). There was no significant difference between the selective neck dissection group and the Radical neck dissection group in the 1-year disease-specific survival (DSS) rate (79.0% vs. 76.9%,  $P = 0.659$ ). Importantly, there were significantly fewer complications in the selective neck dissection group compared with the Radical neck dissection group (13% vs. 21.9%,  $P = 0.040$ ). The disease-free survivors in the selective neck dissection (supra omohyoid neck dissection) group also reported better pain relief ( $P = 0.013$ ) and shoulder function ( $P < 0.001$ ) than those in the Radical neck dissection group one year after treatment. We recommend selective neck dissection with partial glossectomy with 2 cm surgical margin of resection from the border of the tumour as a priority treatment for in anterior two third of tongue cancer in stage T1/T2/T3 with clinically N=Zero Neck.

### SUMMARY and CONCLUSION

The overall incidence of micro metastasis in our study came out to be 26%. Stage wise distribution of the patients in our study was stage T1 44%, T2 42% and T3 14%. The pattern of micro metastasis according to the stage of primary was found to be T1 18.18%, T2 28.57% and T3 42.85%. We found that there was a definitive increase in the incidence of micro metastasis when the T stage of primary is higher.

In 38% patient in our study, the primary was less than 4mm in thickness while in 62% patients it was more than 4mm in thickness. Incidence of micro metastasis in the former group was 26.31% while it was 34.78% when tumor thickness exceeded 4mm.

Total 53.3% patients showed moderately differentiated squamous cell carcinoma in their histopathological report, while 36.6% were well differentiated and 10% patients were poorly differentiated squamous cell carcinoma. Incidence of micro metastasis was 33.3% in poorly differentiated, 18.7% in moderately differentiated and 18.1% in well differentiated squamous cell carcinoma of tongue.

The high incidence of micro metastasis suggests that palpation is not a very reliable method of examination of neck in head and neck cancers. In view of this elective neck dissection should be considered in clinically N-zero neck particularly when the primary tumour is being treated by surgery.

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