ORIGINAL ARTICLE

Role of Neck dissection in early carcinoma oral tongue with NO neck

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Abstract

Background & Objective: Amongst head and neck malignancies, tongue is the second commonest site. This study aims at efficacy of elective neck dissection in management of early carcinoma oral tongue without neck involvement clinically. This study focuses on lymph node metastasis in early carcinoma oral tongue, its management and prognosis.

Material and Methods: This cross-sectional study included the patients presenting from June 2005 to June 2019 retrospectively at Jamal Noor Hospital, Karachi. Total 47-patients were included who presented with early squamous carcinoma oral tongue with no stage (no neck involvement clinically). Patients with metastatic disease were excluded. They were treated by wide local excision (hemi-glossectomy) and elective neck dissection. The biopsy report was studied for histo-pathological evidence of metastasis. Data analyzed by SPSS.

Results: Amongst the 47 cases, 16-patients had T1 while 31 had T2 lesion. Out of 16 cases of T1 lesion; 4(25%) patients had nodal metastases, while amongst 31-patients with T2 lesions 10(32%) patients had nodal metastases. The skip lesion metastases were observed in 01(6%) case to the level III. Metastasis to the level IV & V were not seen in any case.

Conclusions: The lymph node metastasis in 31% patients of early carcinoma oral tongue with no clinical involvement of neck supports the role of elective neck dissection. The supra-omohyoid neck dissection seems to be a safe and effective option. Level IV and V metastasis was less likely seen in such cases. However, neck dissection should include IV and V levels if per-operative extensive metastases is seen in levels II and III.

Keywords: Carcinoma tongue, occult metastasis, elective neck dissection

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Introduction:

Among the head and neck malignancies including the oral cavity lesions, tongue is 2nd commonest site.[1] Tongue cancer can involve anterior ⅔rd of the tongue, i.e. called "oral tongue cancer", or the base of tongue called "oropharyngeal cancer." Cancer of oral tongue accounts for approx. 37% of newly diagnosed oral cavity malignancies.[2]

The cervical lymph node metastases have been observed more frequently in carcinoma of the tongue than rest of oral cavity lesions. Cervical metastases is one of the most significant factors for prognosis of oral tongue carcinoma. Its early detection and treatment may be helpful in preventing the metastasis.[3] Nodal metastasis at presentation is the most significant prognostic factor as positive involvement of nodes reduces the cure rate up to 50%.

The assessment of occult neck metastasis is difficult clinically as well as radiologically. A retrospective study reported 31% incidence of occult nodal metastases in early oral tongue carcinoma with no neck involvement and a 35% cervical node metastases on follow up in T1, T2 lesions where elective neck dissection were not done.[4] Skip lesion is rare in early oral tongue T1, T2 squamous cell carcinoma, thus inclusion of level

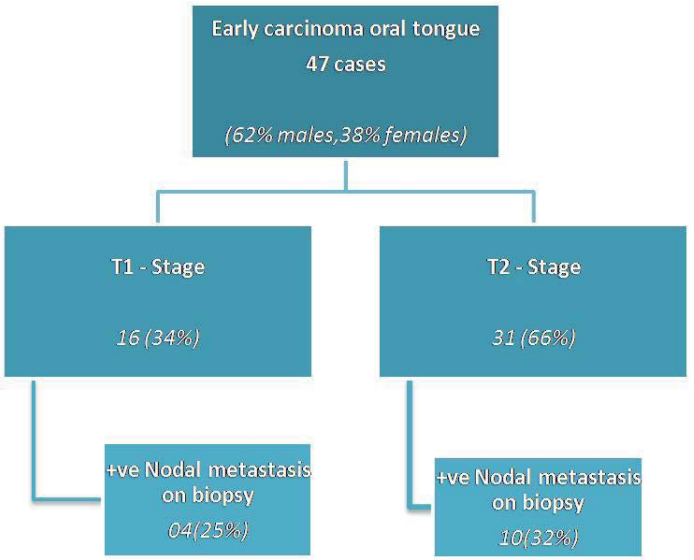

Figure 1: Flow chart representing nodal metastasis identified in the biopsy of early oral call carcinoma cases with no clinical involvement of neck (n=47)

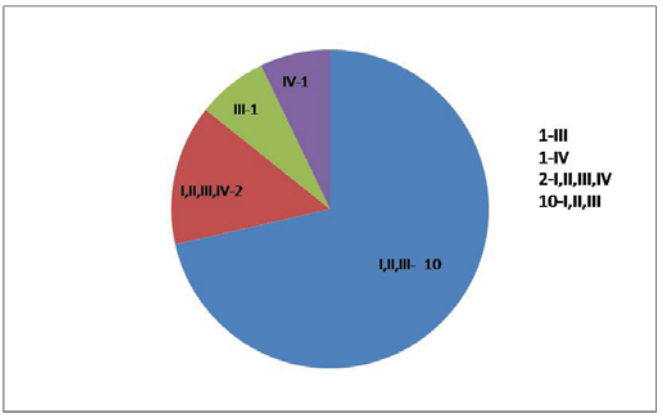

Figure 2: Pie chart representing Lymph node metastasis on biopsy reports (n=14).

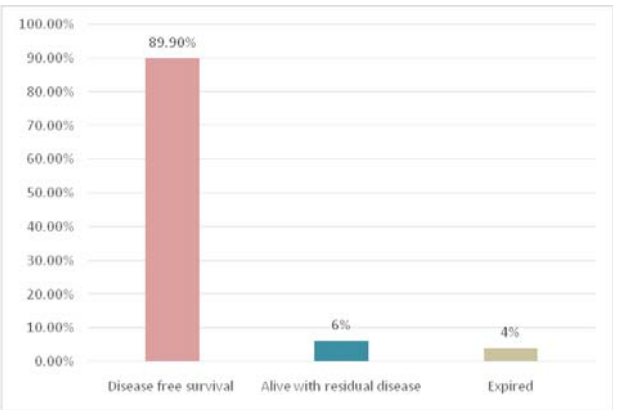

Figure 3: Bar Graph Representing Prognostic Outcomes in Post-operative Cases of Early Oral Carcinoma Tongue (n=47).

IV not mandatory in elective neck dissection for clinically no neck.[5] For the management of early carcinoma oral tongue with negative neck there are three options, elective neck irradiation, elective neck dissection and watchful waiting. The choice depends on the T staging, site of primary lesion, grade, compliance for followup or probability for occult metastasis.[6]

To choose the wait and watch policy one must ensure excellent compliance on behalf of patients for followup as well as great expertise of the doctor to identify the early metastases.[7] While performing elective neck dissection, supra-omohyoid neck dissection (SOHND) has been advocated as procedure of choice which includes removal of lymph nodes from level I (submental & submandibular triangles), II(upper-jugular) and III (mid-jugular). Elective supra-omohyoid neck dissection detects occult metastasis in early node negative oral tongue carcinoma and is sufficient to remove the majority of lymph nodes metastases. Hence, patients with early oral tongue carcinoma showing occult metastasis should be dealt as high-risk patients.[8] A study has advocated extended supra-omohyoid neck dissection that also includes the level IV (lower-jugular) nodes due to the possibility of skip metastasis to this area.[9]

This study was conducted to verify the role of elective neck dissection in the management of early oral tongue carcinoma without involvement of neck clinically and to assess the prevalence of occult and skip lymph node metastases. The results may help to minimize the treatment failure in loco-regional or systemic areas. Also, these may contribute to improving the survival rate in oral tongue carcinoma cases.

Material and Methods:

This cross-sectional study included the patients presenting from 2005 to 2019 retrospectively at Department of Surgery at Jamal Noor Hospital Karachi after ethical approval. Informed consent was obtained from every patient and demographic details including name, age, gender, contact details were documented.

Inclusion criteria were patients presenting with early oral tongue carcinoma T1, T2 stage and no neck involvement clinically. Patients >18 years age and from both the genders were included. Exclusion criteria was the cases that presented as T3 or T4 stage and positive involvement of neck clinically. Also, those cases with invasion of surrounding tissues or involvement of the base of tongue were excluded from the study. All the data were collected from the records which included age, gender, clinical presentation, laboratory investigations and imaging (i.e. ultra sound, CT scan) and results of biopsy reports.

All these patients were managed by wide local excision (WLE) or partial glossectomy along with elective modified radical neck dissection sparing the eleventh cranial (hypoglossal) nerve. The excised tissues, the lesion itself and nodal tissues from each level were sent in separate containers for histology. Post-operatively, the radiotherapy was given to those where metastases seen in two or more neck nodes specimen, extra capsular spread of lesion or when the tumor exhibit sperineural or perivascular invasion. Post-operative follow-up was carried for the disease-free survival, complications like local and distant recurrence or death.

Results:

Amongst the 47 cases, there were 29(62%) males and 18(38%) females. The age ranged between 26 to 77 years. According to the staging, T1 was found in 16(34%) and T2 in 31(66%). Amongst the 16 cases with T1 stage; 4(25%) patients had nodal metastases on biopsy report. Amongst 31-patients with T2 lesion, 10(32%) patients hadnodal metastases. The skip lesion metastases were observed in 01(6%) case to the level III. However, metastasis to the level IV & V were not observed in any case.

The results of histopathological examination of the dissected neck specimen of 47-patients revealed lymph node metastases in 14-patients. The patients with TI SCC, 4 out of 16 had metastases (25%) while the patients had T2 lesion, 10 out of 31 had lymph node metastases (32%), showing (31%) over all lymph node metastases in our study(fig 1).

The overall lymph node involvement was seen in 14 patients, 10 specimens revealed involvement of level I, II and III. Two cases showed metastases in levels I, II, III and IV. Skip metastases was observed in 1-patient in level III. Another patient had nodal metastases of level IV also including the level I, II, and III (Fig 2). Post-operative radiation was given to all 10-patients. 8-patients received radiotherapy on the basis of nodal metastases and 2-patients for histological features of the primary tumor.

The follow up of these cases from 6-months to 8 years revealed that 3 patients had recurrence in the neck and 2 had recurrence at the primary site. The disease-free survival was observed in 42(89%) patients while 3(6%) patients were alive with disease and only 2(4%) patients died of primary pathology. Regarding the complications, wound infection was noticed in 02(4%) and chylous fistula was observed in 01(2%) patient only (Fig 3).

Discussion:

The treatment of early oral tongue carcinoma TI & T2 stage with negative neck remains a matter of controversy so different surgeons follow different protocols.[10] Carcinoma of the oral tongue is an aggressive disease while cervical node metastases further increases the risk of regional and distant metastases, resulting in reduction in the prognosis up to half or 50%.[11]

The management of no neck in such tumor is justifiable if the risk of occult disease is 20% or more. However, it seems to be preferable to treat the primary lesion and neck with a single surgical modality. Retrospective study showed the rate of occult nodal metastases in early carcinoma oral tongue with no neck has been reported at 20% to 40%.[12-14] In our study the incidence of occult nodal metastases was 31%, thus due to the high propensity of occult metastases, elective neck dissection with the excision of early oral tongue carcinoma should be considered to achieve the goal.

The advantage of elective neck dissection provides much accurate pathological staging of the neck as compared with the available radiological data and this pathological information can be a great help for the use of post-operative radiotherapy for a positive neck.[15] For decades the treatment of oral tongue carcinoma with nodal involvement a classical radical neck dissection has been the mainstay of treatment which provides comprehensive removal of lymph nodes of all levels but resulting in significant functional morbidity also.

Retrospective search highlighted many studies to avoid the morbidity of classical radical neck dissection by suggesting the functional neck dissection and supra-omohyoid neck dissection which includes level I, II, and III lymph nodes.[16]

The risk of skip metastases means involvement of lymph node level IV, with sparing the nodes of level I, II & III, for such lesion extended supra-omohyoid (removing level 1 to 4) is required.[17] In a study the occult metastases to level IV lymph nodes is much low as 4%.[18] In our study the skip metastasis was observed in one patient only of level III lymph node, while another one had nodal metastases ofthe level IV, along with the positive nodes involving the level I, II, & III.

For the treatment of no neck in early oral tongue squamous cell carcinomas, there are 3-options available like elective neck dissection, elective neck radiation or wait and watch policy.[19] A resent conducted study revealed that out of 88 patients of early oral tongue cancer with the negative neck, 75-cases had elective neck dissection and 13 had a watchful waiting policy as treatment of no neck. The recurrence was 21% in neck dissection group and 15.4% in wait & watch patients, and disease free survival was seen 78.67% in patients while 84.62% in patients had wait & watch policy.[20] Another retrospective study suggested that elective neck dissection is recommended for early oral tongue T1, T2 carcinoma with negative neck.[21] Tumor size, degree of differentiation, perineural & perivascular invasion have been proposed as predictors of regional metastatic disease.[22,23]

In our study post-operative radiotherapy was given to 10 patients for positive multiple nodal metastases. Retrospective study revealed that the post-operative radiotherapy following elective neck dissection is advised in the presence of multiple metastatic lymph nodes and any node having extracapsular spread.[24] Another study suggested that the post-operative radiotherapy might be effective for patients with a large number of metastatic lymph nodes.[25]

Another study has suggested that nodal recurrence in early stage oral tongue carcinoma occurs more commonly than previously thought.[26] Finally our study indicate the overall micro metastases observed was 31%. that is high & thus advocate elective neck dissection in early oral tongue carcinoma TI, T2 lesion. The incidence of lymph node metastases to level IV and V is much less and they should not be removed in majority and supra-omohyoid neck dissection is sufficient except in cases where per-operative suspicious of extensive metastases seen in I, II & III, than the level IV & V nodes should also be removed. Thus, in the absence of nodal metastases, supra-omohyoid neck dissection has been shown to be effective with minimal morbidity.[27]

Certain limitations of the study are the sampling technique and sample size that can be improved by conducting multi-center collection of data. There is limited regional data addressing oral tongue carcinoma. The results of this study may be helpful to assess the probability of the nodal metastasis despite of clinically negative involvement of nodes. This may be helpful for improving the prognosis and outcome in our patients.

Conclusions:

The lymph node metastasis in approx. ⅓ patients of early carcinoma oral tongue with no clinical involvement of neck supports the role of elective neck dissection. The supra-omohyoid neck dissection procedure seems to be a safe and effective option. Level IV and V metastasis was less likely seen in early oral tongue carcinoma. However, it is suggested that neck dissection should include levels IV and V provided that extensive metastases is seen per-operatively while

performing the levels II and III.

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Role and contribution of authors:

Dr. Fareya Usmani, collected the data, references and did the initial writeup.

Dr. Syed Mosaddaque Iqbal, went through the article and did useful changes.

Dr. Syed Iqbal Hussain, critically review the article and made the final draft.

Dr. Mukhtar Ibrahim, collected the data, references and helped in introduction writing.

Dr. Imran Munir, critically review the article and made useful changes in result, discussion and conclusion.

Dr. Sohail Tirmizi, collected the data, references and helped in discussion writing.

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