

A RETROSPECTIVE STUDY OF CORRELATION BETWEEN DEPTH OF MALIGNANT TONGUE ULCER AND CERVICAL METASTASIS

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ABSTRACT

Background

In India, the oral tongue cancer is the fourth most common type of cancer among all cancers and second most common in cancers of oral cavity in males. Though there are advances in the diagnosis and treatment of the oral malignancies including the tongue, the failure rates in cancer of the oral tongue are high as the tongue malignancy has higher chances of spreading to neck lymph nodes compared with other oral cancers.

Method

A retrospective review of the case records of 55 patients who underwent surgery for the treatment of carcinoma of the tongue was carried off in the department of General Surgery and Onco-surgery at the GCS Hospital, Ahmedabad to ensure the pattern of cervical lymph node metastasis and to assess the sensitivity of depth of malignant tongue ulcer in predicting its nodal spread.

Results

Among 55 patients, diagnosed with carcinoma tongue and operated for hemi glossectomy along with MRND, Lymph node metastasis was present in 22 (40%). Out of these 22 patients, the mean depth of invasion was 11 mm. In patients without lymph node metastasis, the mean depth of invasion was 8.3 mm.

Chances of cervical lymph node metastasis increases with increment in the depth of malignant tongue ulcer.

Conclusion

The infiltration depth of the malignant tongue ulcer can be used as an autonomous predictor for the presence of nodal metastasis.

Keyword: CORRELATION, CERVICAL METASTASIS.

BACKGROUND

Tongue squamous cell carcinoma is one of the most common cancer types in head and neck. Usually in cases of carcinoma tongue, patients present with complaint of a non-healing ulcer or a white patch, that thickens. Tobacco chewing, heavy smoking and alcohol have been identified as independent risk factors for development of tongue cancer. Some other risk factors are: chewing paan, sharp tooth causing irritation and HPV infection. In India, malignancies of oral cavity are very common as tobacco chewing is a habit that is found widespread in the country. Tongue is a complex anatomical structure and is very essential as the swallowing, speech and taste depend on its form and function. In past, various methods of treatment for carcinoma of tongue have been tried but due to its site and rich lymphatic drainage, the survival is poor compared to other subsites in oral cavity as carcinoma tongue is also the most aggressive among all cancers of the oral cavity and carries high chances of cervical lymph node metastasis. Predicting the lymphatic spread from malignant tongue lesion can help in choosing a suitable surgical procedure and can also help in predicting the overall outcome. The present study was intended to assess the pattern of cervical node metastasis from carcinoma of the tongue so that the impact of tumor status on the survival can be evaluated. Many other studies have been done on this subject previously and they have indicated that the tumor infiltration depth is an important factor in determining the further management of oral cancers as the depth of tumor can be used as a predictor of the lymph node metastasis. Through this study, we have also tried to corroborate the use of tumor infiltration depth as a prognostic factor for nodal metastasis in carcinoma tongue.

AIM

- The aim of the study is to find any correlation between depth of invasion of the malignant tongue ulcer based on radiological findings and post operative histopathological findings of the metastasis in cervical lymph nodes.
- To use this parameter as a prognostic tool.

METHODOLOGY

The study was conducted in retrospective manner between August 2020 to July 2021 at the department of General Surgery and Onco-surgery at GCSMCH&RC, Ahmedabad. Total 55 patients were included in my study. The case records were studied and the variables like age, sex, tumor size, grade, clinical TNM, pathological TNM and histopathological levels of involvement were noted. All the cases which have been included in the study, underwent evaluation under general anesthesia before the surgery and were operated for hemi glossectomy along with neck dissection. History of comorbidities like diabetes, hypertension, tuberculosis, any other diseases was noted. In all the patients, specific history was obtained whether patient had received any treatment (radio therapy or surgery) for previous head and neck malignancy. History of neo adjuvant chemotherapy was noted too. Detailed study of MRI neck of all patients was done. Along with site of the tumor, its extension and size of the tumor were noted including the Anterior posterior and transverse dimensions and the depth of the tumor. Lymph node status of the neck was studied and noted. Operative notes of all the patients were thoroughly studied

and the type of resection and the type of neck dissection were noted. In this study, only cases of hemi glossectomy have been studied. The neck dissections include; unilateral modified radical neck dissection, bilateral modified radical neck dissection and selective Supra-omohyoid neck dissection. A detailed study of post operative histopathology report of all patients was done. In histopathology report, tumor grade, its extension, measurements and the depth of invasion were carefully studied and noted. Status of the neck lymph node for metastatic involvement was noted. Data was then collected, compared and analyzed.

Inclusion criteria:

- Biopsy proven cases of carcinoma tongue
- Operated cases of hemi glossectomy with modified radical neck dissection

Exclusion criteria:

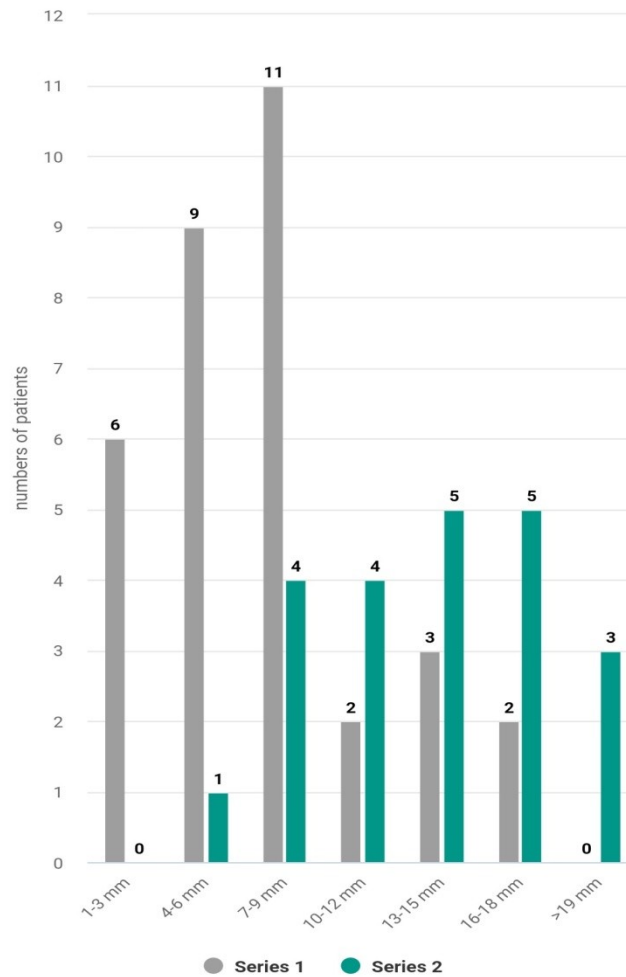
- Cases with recurrence
- Patients who were previously treated (Radio therapy or surgery) for malignancy of the oral cavity.
- Patients who received Neoadjuvant chemotherapy

RESULTS

In our study, the mean age of patients was 46.5 years with male to female ratio of 1.2:1.

TABLE 1. COMPARISON BETWEEN DEPTH OF MALIGNANT TONGUE ULCER AND NECK LYMPH NODES WITH METASTASIS		
DEPTH OF TONGUE ULCER (In mm)	NO. OF PATIENTS WITH -Ve LYMPH NODES	NO. OF PATIENTS WITH +Ve LYMPH NODES
1-3	6	0
4-6	9	1
7-9	11	4
10-12	2	4
13-15	3	5
16-18	2	5
>19	0	3

	TOTAL PATIENTS	PATIENTS WITH POSITIVE LYMPH NODES
MALE	30	13
FEMALE	25	9



SERIES 1: PATIENTS WITH NEGATIVE LYMPH NODES

SERIES 2: PATIENTS WITH POSITIVE LYMPH NODES

X axis: depth of malignant tongue ulcer

Y axis: total patients

[A chart showing correlation between depth of malignant tongue ulcer and numbers of patients with positive and negative neck lymph nodes for metastasis]

In this study we found that, Lymph node metastasis was present in 22 of total 55 patients (40%) and out of these 22 patients, the mean depth of invasion was 11 mm. The mean depth of invasion was 8.3 mm in patients without lymph node metastasis.

A Cut off value of depth of the ulcer was identified at 5 mm. Which suggests that all the patients with depth of tumor less than 5 mm had uninvolved metastatic neck lymph nodes.

All the cases with depth of the ulcer < 10 mm were negative for lymph node metastasis except six cases where lymph nodes had metastatic involvement.

In all the cases with depth of the ulcer > 9mm, lymph nodes were positive for metastasis except eight cases where lymph nodes showed no signs of metastatic involvement.

Male to female ratio for positive neck lymph nodes was 1.4:1

TABLE 3. FREQUENCY OF POSITIVE NODES	
DEPTH OF ULCER IN (mm)	FREQUENCY OF PATIENTS WITH POSITIVE NODES IN (%)
1-3	0
4-6	10
7-9	26
10-12	66
13-15	63
16-18	71
>19	100

TABLE 4. TUMOR STATUS	
TUMOR STATUS	NO. OF PATIENTS WITH POSITIVE NODES
T1	3
T2	4
T3	7
T4	8

As the depth of ulcer increases, the frequency of patients with positive cervical lymph nodes increases. As shown in the table 3, total 15 patients had depth of tumor between 7 to 9 mm. Out of 15 patients, 4 patients had positive lymph nodes (26%). Out of total 8 patients with depth of tumor between 13 to 15 mm, patients with positive nodes are 5 (63%). As the depth of malignant ulcer increases, the increment in the patients with positive lymph nodes also indicates correlation between the two.

DISCUSSION

Early assessment and treatment are beneficial in management of tongue cancer. Clinically undetectable nodal metastasis is one of the common causes of treatment failure as the incidence of cervical lymph node metastasis in tongue cancer is reported to be 30% to 50%.

It was seen that only 30% of T1 and T2 tumors showed nodal metastasis (TABLE 4) whereas 70% of T3 and T4 tumors showed metastasis.

Tarsi Tano et al. ¹ conducted a retrospective longitudinal study in 2016 and it was identified that the cutoff value of infiltration depth has relevance in predicting the risk of lymph node metastasis

of the neck in surgically treated patients affected by stage T1 to T2 oral squamous cell carcinoma of the tongue. In the study, the mean infiltration depth of the N-negative group was identified at 2.4 mm which was considerably different from the observed mean value in the N-positive group at 5.5 mm. A significant cutoff value was identified at an infiltration depth of 4 mm in his study.

Some studies have suggested that neck dissection significantly reduces the mortality and increases the 5-year disease-free survival. Yet some studies have suggested that neck dissection is not necessary until a node is detectable. Currently, in a study by Fakhri et al, they have suggested that in the management of carcinoma tongue, an elective neck dissection is advisable only for patients with certain risk factors. Surgery on the primary tumor often modifies lymphatic drainage, so sentinel node biopsy can be a useful modality while operating the primary tumor and neck at the same time. Also, in a study done by LJ Melchers ², for patients with risk factors including depth of tumor greater than 4 mm, an elective neck dissection is suggested to improve the prognosis of these patients. In our study, a cut off value is 5 mm which is close to obtained value of 4 mm in these two studies as mentioned above.

CONCLUSION

Looking at the data in our study, we can say that the infiltration depth can be used as an independent predictor for the presence of nodal metastasis in malignant tongue ulcers.

Our study also highlights that the tumor infiltration depth has a cut off value, below which the lymph node metastasis is null and this value can be used for management of the cases of carcinoma tongue as it helps in selecting the operative procedure.

We can say that, the depth of a malignant ulcer is a reliable parameter for predicting regional node involvement, selecting operative procedure and patient survival in carcinoma of tongue and can be used for prognosis of the disease.

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Nil

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