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The role of level IV neck dissection in early tongue cancer

Himanshu Patidar

Department of Surgical Oncology, Sri Aurobindo Medical College & PG Institute, Indore (M.P.)

Mayank Pancholi

Department of Surgical Oncology, Sri Aurobindo Medical College & PG Institute, Indore (M.P.)

Corresponding author email: dr.mayank.pancholi@gmail.com

Sanjay Desai

Department of Surgical Oncology, Sri Aurobindo Medical College & PG Institute, Indore (M.P.)

Vinod Kumar Dhakad

Department of Surgical Oncology, Sri Aurobindo Medical College & PG Institute, Indore (M.P.)

Simran Behal

Department of Pharmacology⁵, Sri Aurobindo Medical College & PG Institute, Indore (M.P.)

Abstract--To identify the rate of positive node / skip metastasis at level IV neck node in early carcinoma tongue after elective neck dissection. The records of fifty two patients were retrospectively reviewed from November 2016 to May 2018 who underwent wide excision of tongue lesion with elective neck dissection for early tongue cancer. All the metastatic nodes were at the level from I-III. None of the patient had level IV/V neck node metastasis. Supra omohyoid neck dissection is adequate procedure for node negative early oral tongue cancer patients. The inclusion of level IV dissection should be intraoperative decision and should not be aggressive if no disease was found.

Keywords--oral tongue cancer, skip metastasis, level IV node, clinically negative neck.

Introduction

Squamous cell carcinoma of tongue is on rise in India in comparison to other oral cavity subsites.^[1] Tumour size, depth of infiltration and nodal metastasis are the important prognostic factor in oral cavity cancer. The occult positive rate in node negative early tongue cancer is 30 %. Elective neck dissection is the current standard of care for clinically node negative early staged tongue cancer.^[2] Elective neck dissection may include modified radical neck dissection (MRND), supra omohyoid neck dissection (SOHND), Extended supraomohyoid neck dissection (ESOHND). The pattern of neck node metastasis in tongue cancer is level I, II, III. There are reports of skip metastasis to level IV node as well.^[3] There are conflicting data regarding inclusion of level IV node as routine procedure in elective node dissection specimen for node negative early tongue cancer.

Material and Methods

The clinical records of 52 patients were reviewed who underwent surgery from November 2016 to May 2018. These patients were clinically stage I or stage II tongue carcinoma of anterior two third. All patient were clinically node negative as ascertained by clinical examination, neck imaging in the form of ultrasound neck or CT (Computed Tomography) scan and negative guided FNAC (Fine Needle Aspiration Cytology) from suspicious node. These patients underwent wide excision of tongue lesion with elective neck dissection. The data like age, sex, clinical stage, type of surgery done, pathological stage were recorded.

Results

Our retrospective observational study included fifty two patients. The mean age of diagnosis was 49.5 years. 39(75%) out of 52 patients were male and 13(25%) patients were female. 27 patients that is 52 % had ulcer at right lateral birder of tongue and 48% had disease atleft lateral border of tongue. None of the patient had midline lesion disease or disease crossing the midline. All patients underwent clinical examination, ultrasound of the neck or CT scan. 46 patients underwent ultrasound of the neck and 6 patients had CT scan of the neck done. 22 patients had suspicious node and they subsequently subjected toUS (Ultrasound) guided FNAC from the node. All FNAC results were negative for malignancy. (Table 1).

Clinically 55.7% ofpatients wereT1, 42.3% were T2 and 2 % were T3. 12(23%) patients underwent modified radical neck dissection (level I to V) and 40 (77%) patients underwent extended supra omohyoid neck dissection (level I to IV). 17 patients had positive metastatic node at final histopathology. The occult positive rate is 32.7 % (Table 2). The metastatic nodes at each level were recorded. (TABLE 3).10 patients out of 17 had Level II positive node and is the most common nodal level involved in tongue cancer and accounts for 58.8% of all metastasis to nodes followed by level I and level III which are 29.4% and 29.4% respectively. No level IV/V positive nodes were found.

Table 1
General Demographic Data

VARIABLES	FREQUENCY (%)
N	52
Mean age	49.5
Gender	
Male	39 (75%)
Female	13 (25%)
Site of Lesion	
Right lateral border of tongue	27 (52%)
Left lateral border of tongue	15 (48%)
Imaging	
Ultrasound	46 (88.4%)
CT Scan	6 (11.5%)

Table 2
Tumour and Node characteristics of patients

T Stage	n	Percentage
T1	29	55.7%
T2	22	42.3%
T3	1	2%
TOTAL	52	100 %
Node Status		Percentage
Node negative	35	67.3%
Node positive	17	32.7%
TOTAL	52	100 %

Table 3
Node Distribution in patients (n=17)

SEPARATE NODE ASSESSMENT	
LEVEL I alone	3
LEVEL I + II	1
LEVEL II	8
LEVEL II + III	1
LEVEL III alone	3
LEVEL I + III	1
LEVEL IV	0
TOTAL	17
OVERALL NODE ASSESSMENT	
LEVEL I	5
LEVEL II	10
LEVEL III	5
LEVEL IV/V	0
TOTAL	20

Discussion

Elective lymph node dissection is the important part of treatment in early oral cavity cancer with negative nodes. Its role in improving disease free survival and overall survival come from the landmark work by D'Kruz et al.^[4] Their results show an absolute overall survival benefit of 12.5% and a disease-free survival of 23.6%. In their paper patient in elective surgery group underwent level I –III neck dissection and if intraoperative metastatic nodes was found, a modified radical neck dissection was done. In our study the mean age of diagnosis of tongue cancer is 49.5 years, 75% patients are male. 52 % of lesions are at right lateral border and 48% to left lateral border of tongue. None of the lesion was crossing midline or at midline. 55.7% of patient are clinically stage I and 42.3% of patients are clinically stage II. The occult node positive in early staged tongue cancer in our study is 32.7% which is comparable to many other studies.

It was seen that 10 out of 17 patients had level II nodal metastasis that is 58.8%, out of which 8 patients (47%) had level 2 node metastasis only. Level I and III nodes are involved equally in 29.4% of patient. Only one patient was having Level III along with level I node involvement without involving level II. There was no skip metastasis found to level IV neck nodes in our series of patients. There are many studies which looked into level IV skip metastasis. The skip metastasis was 15.8 % and author concluded to include level IV node in every patient with carcinoma of oral tongue. The particular paper had included advanced T stage (T3 and T4) also.^[5]

According to Balasubramanian et al ^[6], who also looked in to skip metastasis, included 52 patients with T1 to T4 N0 oral tongue cancer and found to have 3.8% and 1.9 % isolated level III and level IV node involvement respectively and no recurrence in the lower juglar nodes after mean follow up of 2 years. They concluded that skip metastasis is rare and level I to III neck node dissection will suffice for early oral tongue cancer with clinically N0 neck. Khafif et al^[7], included fifty one patient with T1, T2, T3 and N0 oral tongue cancer. Only 2 patients had level IV node metastasis (one patient at the time of surgery and second patient had recurrence after average follow up of 4.1 years). Level IV node can be included during surgery when there is metastasis suspicious at level 2 and level 3. They also reassess the data by Byers et al^[5], and concluded that after excluding patients with clinically node positive disease only 13 patients (4.8 %) in cohort of 270 patients had skip metastasis to level IV.

In a study by Nithya et al^[8], regarding neck node metastasis in tongue cancer which includes 75 patients across all T stage and N stage, 63.6% of patients had level II metastasis and 15.2% had level IV involvement but none of them had isolated level IV metastasis in the absence of upper juglar node involvement. In a prospective study by Agarwal et al^[9], of 231 patients which included oral cavity cancer with clinically node negative neck found no skip metastasis at level IV and concluded routine level IV neck dissection is not warranted. In study by Vishak et al^[10], they reported 1.75% of skip metastasis at level IV out of 57 patients of T1N0 oral tongue cancer. 48 patients with T1 T2N0 oral cavity cancer were analysed in a study by Mishra et al^[11], the rate of skip metastasis to level III and IV is zero and most common nodal site for metastasis was level II(63%) with no nodal recurrence

after a follow up period from 1 to 3 year and concluded that neck node involvement occurs in orderly fashion and supraomohyoid neck dissection is appropriate for early stage oral cavity cancer.

In a recent meta-analysis by Anton et al^[12], with 1359 patients for analysis they noted only 0.5% of skip metastasis rate at level IV node in node negative oral cavity squamous cell carcinoma (OCSCC). As per analysis result they also disagree on extended supra omohyoid neck dissection (ESOHND) when found to have suspicious nodes at level II and III which we think needs further validation. At the end author proposed SOHND (supra omohyoid neck dissection) as preferred surgery and oppose routine dissection of level IV nodes.

Conclusion

Skip metastasis rate at level IV is zero in our study. Supra omohyoid neck dissection is adequate procedure for node negative early oral tongue cancer patients. The inclusion of level IV dissection should be intraoperative decision and should not be aggressive if no disease was found.

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