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Cervical Node Metastasis In Early Squamous Cell Carcinoma Of Oral Tongue.

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ABSTRACT

In this study we have tried to analyze the the pattern and risk factors associated with lymph node metastasis in T1 tongue cancer. A retrospective review of the record of fifteen patients undergoing surgery for treatment of T1 squamous cell carcinoma of oral tongue was carried out the clinic pathological future of the tumour, pattern of nodal metastasis and the risk factor associated with lymph node metastasis were studied at sree balaji dental college & hospital., Chennai, totally fifteen patients with T1 tumour underwent excision of the primary and modified neck dissection (MRND type 1). The lymph node metastasis was found in 31.8% of the patients, level 1 and level 2 were the commonest site of metastasis. The skip metastasis at level3 and level4 was found in 6.5% of the patients and isolated skip metastasis at level 4 in 1.5 % of the patients. The risk factors associated with the lymph node metastasis on study were; higher grade, tumour size is more than 1 cm and tumour thickness is more than 3 mm. On present study analysis only the tumour thickness was found to be the risk factor for lymph node metastasis. the T1 squamous cell carcinoma of tongue is associated with a high incidence of lymph node metastasis. Elective neck dissection should be considered in all patients with tumours in-between 3mm to 5mm in thickness.

Keywords: carcinoma of tongue, neck metastasis, tumour size and tumour thickness

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INTRODUCTION

Carcinoma of oral tongue is the most common cancer of the oral cavity in the world and the second most common cancer of oral cavity in India. Tongue, because of its structure and function is prone for early local and regional spread of cancer. Lymph node metastasis is the strongest predictor of prognosis in the head and neck cancers with survival decreasing by 50% in the presence of metastasis [1-3]. Elective lymphadenectomy is recommended whenever risk of metastasis is more than 20% [4]. All patients of cancer of tongue stage T2-T4 generally undergo elective neck dissection because of high incidence micro metastasis. Our aim in this study was to study the incidence, pattern of lymph node metastasis and the risk factors associated with metastasis in T1 tongue cancers.

PATIENTS AND METHODS

A retrospective analysis of 15 patients undergoing primary surgical resection with modified neck dissection (MRND type 1 or MRND type 2) for T1 (< 1cm) tongue cancers with N0 Neck was carried out in Sree balaji dental college and hospital, Chennai in-between 2015-2016. Only patients with AJCC staging of T1 undergoing primary surgery with modified neck dissection of the neck were included in the study. Exclusion criteria were, tumour size T1 (1cm), recurrent tumour, post radiation tumours, multiple tumours, prior neck surgery and patients undergoing supraomohyoid neck dissection. Patient variables like age, sex, size of the tumour, grade of the tumour, tumour thickness, lymphovascular invasion, perineural invasion and histopathological levels of nodal involvement were obtained from the case records.

RESULT

All patients underwent primary tumour excision with modified neck dissection. The age of the patients ranged from 30 years to 60 years. There were 10 males and 5 females. Tumour was grade 1 in 8 patients and grade 2 in 4 patients and grade 3 in 3 patients. No patient had a positive margin after excision. Two patients showed lymphovascular invasion and perineural invasion. All the fifteen patients underwent modified neck dissection (MRND). 11 patients underwent MRND type 1 and 4 patients underwent MRND type 2. 9 patients were N0 after pathological examination and 6 patients showed neck node metastasis. Pattern of nodal metastasis is depicted in table 1

TABLE 1 CLINICOPATHOLOGICAL CHARACTERISTICS OF PATIENTS WITH T1 TONGUE CANCER

| PATIENTS CHARACTERISTICS | | NUMBER OF PATIENTS |
|--------------------------------------|---------------------|--------------------|
| SEX | MALE | 10 |
| | FEMALE | 5 |
| GRADE | WELL DIFFERENTIATED | 9 |
| | MODERATE | 4 |
| | POOR | 2 |
| NODES | PN0 | 11 |
| | PN1 | 3 |
| | PN2 | 1 |
| PATHOLOGICAL NODE DISTRIBUTION LEVEL | I | 6 |
| | II | 6 |
| | III | 3 |
| | IV | 1 |
| | II & III | 2 |
| | II, III & IV | 1 |
| | II, III & V | 0 |

Out of fifteen patients, 6 patients had single node metastasis, level 1 and level II was the commonest site to be involved (in 6 patients). 3 patients had metastasis in level III without level I or level II involvement. 2 patients had metastasis at level 4 with 1 patient having skip metastasis at level IV. 1 patient showed presence of level V metastasis along with metastasis at other levels. On analysis the risk factors associated with the lymph node metastasis were the tumour size, tumour grade and tumour thickness. T1

tumours were divided into size < 1cm and size 1 cm. Only one patient with tumour size less than 1 cm had lymph node metastasis making the tumour size a significant risk factor for metastasis.

It was seen that patients with higher grade had a higher risk of metastasis. Tumours with the depth of invasion in-between 3mm to 5 mm had high risk of metastasis as compared to tumour less than 3mm in thickness (TABLE 2)

(TABLE 2) FACTORS INFLUENCING THE LYMPH NODE METASTASIS IN T1 TONGUE CANCER

| PATIENT CHARACTERISTICS | | NO OF PATIENTS | NO OF PATIENTS WITH POSITIVE NODE |
|-------------------------|-----------|----------------|-----------------------------------|
| AGE | <40 YEARS | 9 | 5 |
| | >40 YEARS | 6 | 3 |
| SEX | MALE | 10 | 4 |
| | FEMALE | 5 | 4 |
| GRADE | 1 | 9 | 5 |
| | 2 | 4 | 3 |
| | 3 | 2 | 1 |
| SIZE | <1 cm | 12 | 8 |
| | 1cm | 3 | 0 |
| THICKNESS | <3mm | 9 | 7 |
| | 3mm | 6 | 1 |
| LYMPHOVASCULAR INVASION | NO | 14 | 7 |
| | YES | 1 | 1 |
| PERINEURAL INVASION | NO | 15 | 7 |
| | YES | 0 | 1 |

On analysis only tumour thickness in-between 3 mm to 5mm was found to be a significant risk factor for lymph node metastasis.

DISCUSSION

The lymph node metastasis is the strongest predictor of survival of head and neck cancers with the survival coming down by 50% in the presence of lymph node metastasis cancer of tongue is notorious for its early metastasis. Radical neck dissection has been the gold standard for the regional control of the disease ever since George Crile described it more than a century ago. The functional morbidity associated with radical neck dissections made people to refine this technique over the years. Presently modified neck dissection (MRND) is the standard procedure for neck control. As metastasis in the neck follows a stepwise pattern it has been recommended that supraomohyoid selective neck dissection should suffice for NO Neck. Out of 15 patients, 8 patients had nodal metastasis making strong case for elective treatment of the neck. Studies have shown differing rates of lymph node metastasis in T1 tumours . while An et al. Reported metastasis rate of 15.4 % in their study Nithya et al. Had 47% [8,9]. Level and level II was the commonest site of metastasis of all the patients. 3 patients had metastasis at level III or IV without involvement of level I and level II. 2 at level III and 1 direct skip metastasis at level IV. The incidence of skip metastasis at level IV has ranged from 3 to 28% in different studies [10- 12] . level V metastasis was seen in only one patient that too in presence of metastasis at other levels. Routine level V dissection can be avoided in most of the patients [13].

It was seen that patients with higher grade had a higher risk of metastasis. Various studies have shown grade to be predictor of lymph node metastasis. Shear et al in nearly 900 patients found grade and size as predictive factors of lymph node metastasis [14]. Byers et al. found that an increasing tumour grade predicted lymph node metastasis.

On dividing the tumours to size <1cm and >1 cm it was seen that only one patient with tumour less than 1cm had lymph node metastasis. Byers et al. And sparano et al. In their studies described the correlation between increasing tumour size and lymph node metastasis [15, 16].

Strongest predictor of lymph node metastasis in our study was tumour thickness. Spiro et al. First described the relationship between tumour thickness and lymphatic metastasis in tongue and floor of mouth tumours [18]. Many studies subsequently have shown a strong correlation between the thickness of tumour and lymph node metastasis. Using <3mm as a cut-off value Yuen et al. Reported an incidence of 8% versus 50% [19]. Kurokawa et al. Reported nodal relapse of 2.9 % vs. 37.5% taking 4mm as a cut-off value [20]. Byers et al., lim et al. And Asakage et al. Also identified a threshold thickness of 4mm [15, 17, 21]. Whereas Fukano et al and hyashi et al. Suggested 5mm as cut-off value [22, 23].

In our study there was no correlation between lymphovascular and perineural invasion and neck metastasis but other studies have found them to be independent predictors [16, 20].

It has been found that clinical examination is notoriously inadequate in neck staging with very high false negative rates. Use of radiological means like ultrasonography and ct scan has not contributed much to improvement in the staging [24, 25]. Even the intra operative assessment has been found to be grossly inaccurate [26, 27]. New imaging methods like PET-CT scan is not sensitive enough to modify the indication of elective neck dissection [28]. USG guided FNAC has been shown to be the most accurate method of detecting cervical lymph node metastasis among all the diagnostic methods US-FNA had a very high specificity; if the US-FNA cytology had a positive. US is preferred for neck status follow-up in “watchful waiting “patients, and US-FNA can be performed if nodal metastasis is suspected [30].

Since our patients were carcinoma tongue with possible high pre test possibility > 30 % of occult metastasis we were justified in not doing any pre test imaging modality before offering neck dissection.

Whether survival benefit is achieved by elective neck dissection in all patients with early tongue cancer remains uncertain. Only three small RCTs have been performed to date [31-33] out of which one study has shown survival benefit for the elective neck dissection group [33]. But at the same time the salvage rate after neck recurrence has been very poor. HO et al. Reported that the salvage rate after the appearance of the nodal metastasis was 30% [34].

CONCLUSION

The high incidence of neck metastasis in T1 tumours with N0 neck, especially with poor grade, larger size (>1cm) and thickness ranging in-between 3mm – 5mm and unreliability of clinical examination and adjunct investigations in detecting occult metastasis makes elective treatment of the neck either by surgery or radiotherapy necessary. We suggest that all the patients of T1 tongue cancers treated with tumour thickness more than 3mm – 5mm should undergo at least a supraomohyoid neck dissection.

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