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INCIDENCE OF SKIP METASTASIS IN EARLY ORAL SQUAMOUS CELL CARCINOMA OF TONGUE- A SINGLE TERTIARY CANCER CENTER EXPERIENCE

Oncology

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ABSTRACT

Tongue cancer is one of the most common cancers of the oral cavity seen most commonly in the western world. Cervical lymph node status is prime determinant of survival and tongue cancers demonstrate a propensity for skip metastasis. This study was mainly aimed to identify the incidence of skip metastasis in early tongue squamous cell carcinoma. A retrospective study of sixty one patients with biopsy proven Oral Squamous Cell Carcinoma of tongue was done. The patients underwent Wide Local Excision of primary lesion along with ipsilateral extended supraomohyoid neck dissection. A total of twenty six patients had occult nodal metastasis, of which 13 patients had isolated Level III and IV involvement. The study established the need for clearance of lower jugular nodal level during neck dissection for oncological safety even in early cases of tongue squamous cell carcinoma.

KEYWORDS

ORAL CANCER,TONGUE CANCER, SKIP METASTASIS, N0 NECK

INTRODUCTION

Tongue cancer is one of the most common cancers of the oral cavity seen most commonly in the western world. However, there has been an increment in the trend of the tongue cancers in Indian subcontinent. The AJCC 8th edition of the tongue carcinomas has included Depth of invasion for the evaluation of T staging. The nodal metastases from oral tongue squamous cell carcinoma follow an orderly pattern to neck nodal levels II to IV. There are also normal anatomic lymphatic channels that bypass this orderly progression. The lower nodal stations may be involved (ie, level III or level IV) without the involvement of the preceding nodal levels. This is termed skip metastases. This phenomenon is anatomically possible, as discussed by Rouviere in his dissertation of the lymphatic pathways associated with the oral portion of the tongue.[1] This study was done to evaluate the incidence of skip metastasis in early tongue cancers presenting at a tertiary cancer institute.

MATERIALS AND METHODS

This retrospective study was carried out in department of Oral oncology, Kidwai Memorial institute of oncology, Bengaluru, India from 2016-18. Patients diagnosed with biopsy proven oral squamous cell carcinoma of tongue were included in the study. Benign diagnosis, recurrent and residual lesions were excluded from the study.

All patients underwent clinical examination and contrast-enhanced MRI scanning before the initial treatment. The tumour, node, metastasis classification and clinical stage were determined according to the criteria established by the American Joint Committee on Cancer and the International Union Against Cancer, 8th edition. All patients with clinical T1, T2 and N0 status underwent wide local excision of the primary tumour along with ipsilateral Extended Supraomohyoid Neck Dissection, according to Institution protocol. The microscopic slides were reviewed by a single pathologist. Histological grade was determined based on classification proposed by the World Health Organization.

The specimen of the neck dissections was fixed in 10% neutral-buffered formalin. All lymph nodes were carefully dissected from fat. All nodes that were 5 mm or larger were subjected to haematoxylin and eosin (H and E) stained pathological examination.

RESULTS

Of the 61 cases of early tongue cancers, who were determined to be T1, T2, NO clinically, the median age of presentation is 51 years. The sex distribution of our data is – 65.5% males and 34.5% females. The demographic data is presented in Table I.

A total of 35 patients did not have any nodal metastasis in the final Histopathology report, whereas a significant number of patients (=26 patients) showed occult metastasis. Of the 26 patients, a total of thirteen patients had skip metastases (21.3 %). Of these, eight patients had positive nodes only in level III, while five patients showed involvement of level IV nodes without the involvement of levels I and II. According to the management strategy followed, adjuvant radiotherapy was given to all patients with stage III or IV disease, which was primarily due to N+ status. Extranodal spread (ECS), close/positive margins, perineural invasion (PNI), and lymphovascular invasion were also indications for adjuvant radiotherapy, including patients with pN1 disease. Additional concurrent chemotherapy was given in patients with extranodal spread or close/positive margins.

DISCUSSION

Oral squamous cell carcinomas are the most common malignancy seen in the Indian subcontinent. It is the second most malignant condition observed in both sexes in India.[2] Tobacco is most cited single risk factor for cancers of oral tongue. Both smoked and smokeless tobacco predisposes to cancer. Areca nut itself is a proven carcinogen.[3] The other risk factors include alcohol, HPV, malnutrition and diet deficient in vitamins A, C & E, poor oral hygiene and sharp teeth. [3-7]

The risk of developing oral cancer increases with age and many cases occur in people between 4th to 6th decade of life. In the present study, it was observed that in patients with oral squamous cell carcinomas, the mean age was 51.24 years and the most commonly involved age group was 51-60 years accounting for 21.62% followed by age group of 31-40 years (20.27%).

Cervical lymph node metastasis is the single most adverse prognostic parameter in head and neck squamous cell carcinoma.[8] The cervical nodal metastases in oral tongue carcinoma usually follow a predictable pattern to neck nodal levels II to IV. This predictable pattern of lymphatic spread allows for modifications of neck dissections when

addressing nodal disease in the neck.[9] Level IV nodal dissection in the lower neck is associated with damage to the lymphatic ducts, resulting in thoracic duct injury and subsequent chyle leak in the postoperative period. The lower nodal stations may be involved (ie, level III or IV) without the involvement of the preceding nodal levels. The concept, termed *skip metastasis*, was first reported by Byers et al for oral tongue cancers.[10]

In this retrospective series of 61 patients, 8.1% had occult level IV metastasis as the only manifestation in the neck or the level III node was present without disease in levels I to II (13.1 %). The results from this study suggested surgical removal of the lower jugular group of nodes (level IV). Few recent studies have debated the approach as they have encountered a much lower incidence of skip metastasis. Dias et al. in a retrospective review of 339 previously untreated patients with T1T2N0M0 squamous cell carcinoma of the tongue and floor of the mouth, reported 6.5% and 2% involvement in levels IV and V, respectively.[11] Only 1.5% had neck nodal involvement in level IV in patients who underwent elective neck dissection for N0 necks.

The histopathological examination of the specimens demonstrated positive nodal metastasis in 35 patients. The incidence of isolated level III was seen in 8 patients (13.1%), and isolated level IV nodal involvement observed in 5 patients (8.1%). The data from our study indicates that the half of the positive nodal disease showed skip metastases. This also reiterates the institutional protocol of performing Extended Supraomohyoid Neck Dissection including levels I, II, III and IV in patients with an N0 neck in T1 and T2 oral tongue squamous cell carcinoma.

CONCLUSION

Skip metastasis in isolated neck nodal levels III and IV is a frequent finding in T1 and T2 oral tongue squamous cell carcinoma. Selective neck dissection for clinically and radiologically negative neck disease in T1 and T2 tumors needs to include upto levels IV nodal station for enhancing the oncological results. in every patient with squamous carcinoma of the oral tongue, and base any decisions on the need for postoperative radiation on the complete pathologic information obtained from this procedure. The issue of distant metastases and survival was not addressed in this study, because the aim was to identify the frequency of skip metastasis to the nodes. Prospective studies with long follow up should be taken up to establish the suggested treatment protocol in the current research.

Table I: Demographic data

	No.of cases	Percentage
	61	
Age		51 years (Median)
Sex		
Male	40	65.5%
Female	21	34.5%
Clinical staging		
T1	20	32.7 %
T2	41	67.3 %
Histopathological N staging		
N0	35	57.3 %
N+	26	42.7 %

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