Original research article

CLINICAL AND HISTOPATHOLOGICAL PATTERNS OF CERVICAL LYMPH NODE METASTASIS IN ORAL CANCERS UNDERGOING SURGERY

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Abstract

Introduction: Oral cancer is the term referred to oral squamous cell carcinoma of the oral mucosa as it forms 95% of oral cancer cases. It is estimated to be the sixth most common cancer which accounts for 0.6% to 5% of all cancers. Neck metastasis is one of the most important factor determining the progress.

Material And Methods: This retrospective study was based on a review of the hospital records of patients who were diagnosed and operated for carcinoma oral cavity between 2014 to 2016. There were 40 cases of oral carcinoma. Charts were retrospectively reviewed for age, site of tumour, clinical involvement of lymph nodes, histopathological involvement of lymph nodes. Tumour staging was done according to the AJCC classification.

Results: Out of 40 patients taken in the study 21 (52.2%) patients were aged between 30 to 49 years with male preponderance 27(67.5%). Tongue and buccal mucosa were the commonest subsites involved (45% each). Level Ib is the most frequently involved in oral cancers but with higher stages the lower level are more frequently involved especially as micrometastasis.

Conclusion: There is a dilemma between risk and benefits of neck dissection in N0 necks in oral cancers. Based on our experience we recommend at least a selective neck dissection in the patients undergoing resection of oral carcinomas.

Keywords: Oral Cancers, Cervical Lymph Node Metastasis, Neck Dissection

INTRODUCTION

Oral cancer is the term referred to oral squamous cell carcinoma of the oral mucosa as it forms 95% of oral cancer cases. It is estimated to be the sixth most common cancer which accounts for 0.6% to 5% of all cancers in Europe, United States, and Australia respectively, but up to 45% of cancers in India. It mostly affects males with incidence of 75% patients over 60 years, but its incidence is also growing among females.[1] The most common causative factors associated with squamous cell carcinoma of the oral cavity are alcohol and tobacco abuse. Betel nut and tobacco chewing are responsible for the high incidence in the Indian subcontinent. It may appear in any area of the oral cavity, but there are certain areas, in which it is found more frequently, the oral tongue and floor of the mouth represent about 90% of all oral cavity malignancies.[2,3] Lymph node metastasis occurs in about 40% of patients with oral cancer and their clinical manifestations are hidden in rate of 15% to 34%.[4] The status of cervical lymph nodes at presentation is the single most important prognostic factor for patients with oral squamous cell carcinoma.[5] The five year survival rate in patients with neck metastases decreases according to the number and level of the nodes involved and if capsular rupture is present.[6] The indication of Neck dissection in Head and Neck malignancy is a problem of risk benefit evaluation between the probability of neck metastasis, the probability of complications associated with neck dissection and the possible prognostic influence of late diagnosis of metastasis during follow up. Therapeutic dissection decreases the risk of regional recurrence in cases where there is high probability of neck metastasis. However, if the probability of neck metastasis is low or nil, neck dissection simply acts as an overtreatment, where the morbidity of the neck procedure only offers a decrease in quality of life and functional deficits.[7] Our study aimed to assess the pattern of metastasis in oral cancer which may aid in better management of neck metastasis.

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MATERIAL AND METHODS

This retrospective study was based on a review of the hospital records of patients who were diagnosed and operated for carcinoma oral cavity between 2014 to 2016. Surgery was in the form of primary resection and a type of neck dissection in all the patients.

There were 40 cases of oral carcinoma. Charts were retrospectively reviewed for age, site of tumour, clinical involvement of lymph nodes, histopathological involvement of lymph nodes.Tumour staging was done according to the AJCC classification

RESULTS

Out of 40 patients taken in the study 21 (52.2%) patients were aged between 30 to 49 years with male preponderance 27(67.5%) with right side being involved in 22(55%) cases.

Buccal mucosa and tongue were the most common site involved with equal number for each in our study group (Table-1).

Table-1: Subsites of oral cancer observed

S.No	Site	No. of Patients
1	Buccal Mucosa	18 (45%)
2	Tongue	18 (45%)
3	Lip	2 (5%)
4	Angle Of Mouth	2 (5%)

Irrespective of primary stage most common level to be involved clinically was level 1b (Table-2) and as the staging of the primary tumour increased the mean number of lymph nodes involved per patient in his level also increased (Table-3).

Table-2: Total number of clinically palpable lymph nodes according to levels (40 cases)

S.No	Levels	Clinically Palpable Lymph Nodes
1	Level Ia	2
2	Level Ib	22
3	Level II	5
4	Level III	2
5	Level IV	3
6	Level V	1

Table-3: Mean number of clinical lymph nodes palpable in each level according to T Stage

	Level I-a	Level I-b	Level II	Level III	Level IV	Level V
T1						
T2	0.1	0.6	0.75	0.1	0.2	
T3	0.25	0.7	0.5		0.16	0.16
T4		1.6		0.3		

Modified Radical neck dissection was the most commonly carried out procedure for addressing neck metastasis and TYPE I was carried out in all patients where spinal accessory nerve was preserved. Among the selective neck dissection, Supraomohyoid was the commonest to be performed where neck was clinically negative. However Radical Neck Dissection was carried out in 2 patients only (Table-4).

Table-4: Type of Neck Dissection Performed

Type	No. of Patients	Percentage
Modified Radical ND Type 1	19	47%
Radical ND	2	5%
Supra Omohyoid ND	14	35%
Extended Supraomohyoid ND	5	13%

Neck Dissection (ND)

Mean number of lymph nodes per patient in Level 1b increased with the stage of the primary. On histopathological examination after surgery it was further observed that with T4 cancers Level III and Level V had greater nodal involvement.(Table-3 & 5)

Table-5: Mean number of histopathologically proven lymph nodes according to T Stage

	Level I-a	Level I-b	Level II	Level III	Level IV	Level V
T1						
T2	0.2	0.6	0.75	0.1	0.3	0.1
T3	0.25	0.8		0.1	0.3	
T4		2		1.6	0.3	1

Comparison of patients with clinically palpable nodes and histopathologically positive nodes (Table-6) revealed that 20% cases were clinically positive but histopathologically negative whereas 17.5% patients had no clinically palpable nodes but were histopathologically positive.

Table-6: Comparative patient distribution in terms clinical examination and histopathology

Pre-operative Clinical Examination	Histopathological Results		Total
	Positive	Negative	
Positive	20 (50%)	8 (20%)	28 (70%)
Negative	7 (17.5%)	5 (12.5%)	12 (30%)
Total	27 (67.5%)	13 (32.5%)	40 (40%)

DISCUSSION

Nodal involvement is the most important prognostic factor in the management of Head and Neck cancers. Regardless of site of primary tumour, the presence of single ipsilateral or contralateral metastatic node reduces survival by 50% and bilateral disease by a further 50%.[8]

Out of 40 subjects 67.5% were male which corresponds to earlier studies by Harald Essig et al this correlates with the fact that the consumption of tobacco and alcohol is more prevalent in males.[9]

Most of the patients (52%) were aged between 30-49 yrs with similar results have been found by CS Nithya et al.[10] However, a couple of other authors (Razavi et al and Howell et al) on the studies of trends or oral cancers reported most of their cases above 60 years.[11,12] Thus, the Indian trends indicates an earlier, middle age involvement.

Buccal Mucosa and tongue were the most common subsites for oral cancers in our study group (45%) each. Muwonge R et al, studied the role of tobacco smoking, chewing and alcohol drinking in the risk of oral cancer. According to them tobacco chewing was the strongest risk factor and this is quite prevalent in the parts of India where the study was carried out.[13] On the contrary, lip and gingiva were the most common sites involved followed by tongue by some authors.[11,12]

Li XJ et al in their clinicopathological analysis of cervical lymph node metastasis with oral squamous carcinoma observed that Level II whereas we found it to be Level Ib in our series. Level Ib involvement was also the commonest in the study of Shah et al.[14,15] Byers et al showed that 16% of patients with oral cancer had metastases in level IV without nodes in levels I,II and III.[16] This was 10.5% in our analysis indicating that high degree of suspicion for level V involvement is required in the surgical planning.

We calculated the number of clinically palpable as well as histopathologically positive nodes for each level per patient (Tables IV & VI). These increased as the stage of the primary increased over T1 to T4. Similar pattern was reported by Wu-Long.[17] On histopathological examinations an increased incidence of positive nodes per patient was observed in levels III,IV & V especially.

Around 20% patients appear to have been over treated in terms of neck dissection as they had clinically palpable nodes but were not proven histopathologically for metastasis. Further, in 17.5% patients no lymph nodes were palpable but their histopathologies were positive. Kingerman reported fewer neck recurrences in patients who had undergone elective neck dissection along with primary resection than those undergoing resection alone (24% versus 42%).[18]

As a protocol we performed at least a selective neck dissection in all the patients of oral cancer undergoing surgery for the primary. Moreover, significant complication/morbidity was documented in patients undergoing selective neck dissection.

CONCLUSION

The decision of Neck Dissection versus observation is a dilemma between risks and benefit. The points favouring neck dissection are the high incidence of occult metastasis, poor salvage rates and increased capsular spread.[19] Unnecessary morbidity and doubtful survival benefit were commonly cited reasons for avoiding routine elective neck treatment.[20]

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