CLINICOPATHOLOGICAL CORRELATION OF NECK NODE METASTASIS IN HEAD AND NECK MALIGNANCY – A RETROSPECTIVE STUDY

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Abstract:

Identification of a patient with regional neck node metastasis and treating them accordingly is very important so as to reduce the mortality associated with head and neck malignancies. The study was conducted in a tertiary care center in Maharashtra. Determination of neck node metastasis is important in cancer bearing patients especially when it comes to deciding the further line of management and also is of prognostic significance. The aim of this study was to correlate the evidence of neck node metastasis on both clinical as well as histopathological examination. The most common tumour and nodal staging at presentation were also found out

Methodology: A proforma was filled out for each patient with head and neck malignancy from the medical registry that has underwent any type of neck dissection along with resection of primary tumour.

Results: The sensitivity and specificity of clinical examination for neck node metastases was found to be 70.59% and 60.61% respectively. The positive and negative predictive values for the same is 48% and 80% respectively. Most of the patients presented with a tumor stage of T2 but when it came to nodal staging alone, 50% of the patients did not have any clinically palpable cervical lymph nodes.

Conclusion: The study showed how important is it do address the neck electively in a case of head and neck malignancy along with resection of primary tumor as even in cases where neck nodes were not palpable clinically there was evidence of neck node metastasis on histopathological examination.

Keywords: Malignancy, Metastasis, Neck node, Head and neck

INTRODUCTION

Malignancy of the head and neck region is the sixth most common malignant disease, and also represents around 6% of all malignancies afflicting patients in the world. Most of these patients are diagnosed with squamous cell carcinoma. It is also the malignancy with the highest mortality rate in India. (1)

Most of these patients have concomitant regional neck node metastasis and this is an extremely important factor in the prognosis of a case of head and neck malignancy. Therefore, the degree of involvement of neck nodes is considered indirectly as an index of the systemic tumor burden. The spread to cervical lymph nodes is the most common and important mode of spread in any case of head & neck cancer. The extent of metastasis to cervical lymph nodes is indicative about the aggressive nature of the primary tumor. Post diagnosis of a malignancy if there is associated neck node metastasis and if the

modality of treatment is surgical excision of the tumor, then simultaneous neck node dissection is done. However, at times elective neck node removal is considered when there is suspicion of a subclinical neck node metastasis or if clinical evaluation of the neck is difficult or if a reconstruction is planned.

Detection of presence or absence of occult metastatic neck node that cannot be identified clinically or radiologically but can be identified on light microscopy or micrometastases that measures less than 2 mm in diameter that require special techniques like step serial sectioning, immunohistochemistry or molecular analysis is also very common in head and neck malignancies. [(3)] To address an occult metastatic neck disease will require an elective neck dissection.[(4)]

In any suspected neck node metastases with or without clinical evidence of lymphadenopathy is to undergo an elective neck dissection as in many cases these nodes turn out to be positive for metastases histopathologically. Untreated neck disease will increase the risk of distant metastases and also pathological status of cervical lymph node for its features of positivity for metastasis can be used as a prognostic factor. Also, the presence or absence of occult metastases will help in taking a decision regarding the plan for any adjuvant irradiation. In any case prophylactic neck dissection should be considered in a known case of histopathologically proven malignancy of primary tumour in head and neck.

MATERIALS AND METHODS

A retrospective cohort study was carried out in a tertiary care center in Maharashtra over a period of 6 months. A standard proforma was used to collect the data from the medical registry of 50 patients that have underwent any type of neck dissection along with resection of primary tumor in a case of head and neck malignancy. The patients that had any history of previous malignancies, cases of recurrence of malignancy or has underwent chemotherapy or radiotherapy previously were excluded. The quantifiable variables were presented as frequency and percentages.

OBSERVATION AND RESULTS

Majority of the patients that presented with head and neck malignancy were of the age group between 40 to 50 years (46%), and the least belonged to the age group of 20 to 30 years (2%). The lowest age group belonged to that of 20 to 30 years and the highest was that of 70 to 80 years (2%). The mean age group is 51.2 years. The study constituted a majority of male patients of 86%, and the female population was 14%.

Table 1: Site of primary tumour

	Frequency	**Percentage %**
Buccal mucosa	9	18.00%
GBS	3	6.00%
Larynx	1	2.00%
Lateral border of tongue	29	58.00%
Maxilla	1	2.00%
Parotid	2	4.00%
RMT	5	10.00%

Majority of the subjects in the study presented with a primary tumour over the lateral border of tongue which constituted of 58%. The rest of the subjects presented with primary tumour in buccal mucosa (18%), retromolar trigone (10%), gingivobuccal sulcus (6%), parotid (4%), maxilla (2%) and larynx (2%).

Table 2: Pathologically positive for cervical lymph node metastasis but clinically negative

Clinical N stage	Pathological N stage	Frequency	Percentage %
N0	N1	3	60.00%
N0	N2b	1	20.00%
N0	N3b	1	20.00%
Total		**5**	**100.00%**

Out of the total study population of 50, 5 (10%) of them were found to be having no clinically palpable cervical lymph nodes but after an elective neck dissection had neck node metastasis on histopathological examination. Out of this pN1 stage was in 60%, pN2b in 20% and pN3B in 20%.

Table 3: Correlation of clinically palpable cervical lymph node and pathological neck node metastasis

Clinically palpable lymph node	Evidence of neck node metastasis on HPE post operatively		Total
	Positive	Negative	
Positive	12 (24%)	13 (26%)	25
Negative	5 (10%)	20 (40%)	25
	17	33	**50**

Table 4: Sensitivity and specificity based on table 3

Parameter	Percentage	95% confidence interval
Sensitivity	70.59%	46.87 – 86.72
Specificity	60.61%	43.68 – 75.38
Positive predictive value	48%	30.03 – 66.5
Negative predictive value	80%	60.87 – 91.14

Out of 25 patients that had clinically palpable lymph nodes 12 (24%) were true positive while, 13 (26%) were false positive. 5 (10%) of them were false negative and 20 (40%) were true negative.
Sensitivity of clinical examination was seen to be 70.59%, specificity of 60.61% with positive predictive value of 48% and negative predictive value of 80%.

Table 5: Clinical Tumor (T) stage and clinical cervical lymph node (N) stage

Clinical T stage	Clinical N stage				Total
	N0	N1	N2a	N2b	
T1	14 (28%)	1 (2%)	3 (6%)	1 (2%)	19 (38%)
T2	10 (20%)	10 (20%)	4 (8%)	3 (6%)	27 (54%)

T3	1 (2%)	0	1 (2%)	0 (2%)	2 (4%)
T4	1 (2%)	0	0	1 (2%)	2 (4%)
Total	25 (50%)	12 (24%)	8 (16%)	5 (10%)	50

According to AJCC (American Joint Committee on Cancer) 2018 cancer staging majority of the patients presented with clinical stage of T1N0 that is 14 out of 50 patients but when we look at tumor stage alone majority that is 54% presented with tumor stage T2. Majority of the study population (25 out of 50) had N0 nodal staging. [5]

CONCLUSION

This study was conducted to understand the correlation between neck node metastases in any head and neck malignancy that were palpable on clinical examination and seen on histopathological examination after a neck dissection and also to see the most common clinical stage at which the patient presents. The study was conducted retrospectively in 50 patients that underwent neck dissection in a case of head and neck malignancy.

Majority of the patients that were a part of the study were male patients, females constituted only 14%. The mean age of the study population is 51.2 years and most were from the age group of between 40 to 50 years. Most of them had primary tumour over the lateral border of the tongue which constituted 58% of the patients included in the study. 25 out of 50 patients in our study had no clinical evidence of neck node enlargement. However, 5 patients had evidence of neck node metastases on histopathological examination. Out of these 5 patients, 3 patients had N1, 1 patient had N2b and 1 patient had N3b pathological N staging respectively. The sensitivity and specificity of clinical examination for neck node metastases was found to be 70.59% and 60.61% respectively. The positive and negative predictive values for the same is 48% and 80% respectively. Most of the patients presented with a tumor stage of T2 but when it came to nodal staging alone, 50% of the patients did not have any clinically palpable cervical lymph nodes.

Hence clinical examination to detect any palpable neck nodes is important in any case of head and neck malignancy which can help in deciding the necessity to perform neck dissection along with resection of primary tumour. This is of primary importance as many surgeons still debate on the need of an elective neck dissection in a case of head and neck malignancy in the absence of palpable cervical lymphadenopathy. But according to this study there were cases where the patient had no clinical evidence of cervical lymphadenopathy but after performing a selective neck dissection and histopathological examination of this specimen showed evidence of neck node metastasis. Thereby performing an elective neck dissection of any type according to the site of primary tumor would be highly advisable to avoid recurrence and future distant metastases.

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