

Original Article

Prevalence of Metastatic Neck Nodes

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Abstract:

Background: Head and neck cancers include cancers of the lips, mouth, nasal cavity, paranasal sinuses, pharynx and larynx. Most of these cancers are squamous cell carcinomas (SCCs). The presence of metastatic cervical lymphadenopathy is of particular importance as with every single nodal metastasis, survival of the patient is reduced by one half.

Objective: To see the prevalence of metastatic neck node.

Methods: The prospective cross-sectional clinical study was carried out in the Department of ENT and Head Neck Surgery, Combined Military Hospital, Dhaka during March'2018 to March, 2019. All 100 patients were included in this study and were treated at the Department of Otolaryngology of Combined Military Hospital, Dhaka

Results: Total 26 cases were found parotid among them 8(30.8%) in metastatic neck node and 18(69.2%) in without metastatic neck node. Total 10 cases were found paranasal sinuses among them 1(10.0%) in metastatic neck node and 9(90.0%) in without metastatic neck node. Which were statistically significant ($p < 0.05$) between two groups.

Conclusion: In this study observed that majority of metastatic neck node were found pyriform fossa, supraglottic larynx, base of tongue which were 68.2%, 68%, 77.8% respectively. In oral cavity and parotid site also found 48.1% and 30.8% metastatic neck node.

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Introduction:

Head and neck cancers include cancers of the lips, mouth, nasal cavity, paranasal sinuses, pharynx and larynx. Most of these cancers are squamous cell carcinomas (SCCs) and they usually metastasized locally to the cervical lymph nodes.¹ Oral cancer is the sixth most common cause of cancer-related deaths worldwide.² In the sub-continent scenario oral cancer is the second most common cancer. The presence of metastatic cervical lymphadenopathy is of particular importance as with every single nodal metastasis, survival of the patient is reduced by one half.³ Thus regional metastasis is one of the most important

factors in the prognosis and treatment planning of patients with head and neck squamous cell carcinomas.^{3,4} The inaccuracies in clinical examination have been well documented and the diagnostic imaging modalities have been shown to have superior diagnostic accuracy in detecting occult nodal metastasis.^{5,6}

Most commonly used tumour node and metastasis (TNM) classification system fails to define the exact size and measurements of the tumor including diameter, length, width, area, volume and tumor thickness⁷ and the clinical issues related to it.⁸ The prevalence of patients with distant metastases was equal for men and women (both 14%; $p=1.0$).⁹ We conducted this study to determine the prevalence of lymph nodes metastasis among patients who had head and neck cancers.

Methods:

The prospective cross-sectional clinical study was carried out in the Department of ENT and Head Neck Surgery, Combined Military Hospital, Dhaka during March'2018 to March,2019. All 100 patients were included in this study and were treated at the Department of Otolaryngology of Combined Military Hospital, Dhaka. In this study performed bilateral neck dissection including the level V area for cN0 and cN+ cases with primary tumor (over T3) resection to pathologically evaluate the rate of level V metastases on bilateral sides. During level V dissection of cN0 cases, we carefully preserved the cervical nerves and the SAN and did not experience any severe complication of nerve damage. Since 2007 we have performed bilateral neck dissection only for cN2c cases and have spared the

level V area for cN0 cases, according to National Comprehensive Cancer Network (NCCN) guidelines. Clinical and pathological reports of these 162 patients were retrospectively reviewed. All lymph nodes were separated from neck dissection tissue for histopathological examination. The prevalence and distribution of neck LNM were determined level by level for each primary site according to the results of the pathological analysis. The prevalence of pathological metastasis to level V lymph nodes on the ipsilateral and contralateral sides was investigated in all cases. Several predictive risk factors for level V metastasis were also evaluated such as age, sex, primary site, T stage, N stage, degree of pathological differentiation and lymph node status of other levels (levels I–IV). Statistical analysis was performed using Fisher's exact probability test (SPSS ver-23). p values of < 0.05 were considered statistically significant.

Results:

Majority (55.0%) patients were male, mean age was found 56.1 ± 14.7 years, 82(82.0%) patients were ipsilateral of metastatic, 48(48.0%) were moderate tumor, 40(40.0%) patients had pT stage 1, 77(77.0%) had pN stage N0, 31(31.0%) were neck dissection and 21(21.0%) were positive margin (Table -I). Total 26 cases were found parotid among them 8(30.8%) in metastatic neck node and 18(69.2%) in without metastatic neck node. Total 10 cases were found paranasal sinuses among them 1(10.0%) in metastatic neck node and 9(90.0%) in without metastatic neck node. Which were statistically significant ($p < 0.05$) between two groups (Table-II).

Table-I
Demographic and clinical characteristics of the study patients

	Number of patients	Percentage
Sex		
Male	55	55.0
Female	45	45.0
Mean age (years)	56.1	±14.7
Side of metastatic		
Ipsilateral	82	82.0
Contralateral	18	18.0
Tumor differentiation		
Unknown	2	2.0
Poor	7	7.0
Moderate	48	48.0
Well	43	43.0
pT classification		
T ¹	28	28.0
T ²	40	40.0
T ³	19	19.0
T ⁴	13	13.0
pN classification		
N0	77	77.0
N1	16	16.0
N2a	3	3.0
N2b	3	3.0
N2c	1	1.0
N3	0	0.0
Neck dissection		
Yes	31	31.0
No	69	69.0
Margin status		
Positive	21	21.0
Negative	79	79.0

Table II :

Association between primary site with metastatic neck node and without metastatic neck node

Primary site	N	Metastatic neck node	Without metastatic neck node	P value
Oral cavity	108	52 (48.1%)	56 (51.9%)	0.570 ^{ns}
Parotid	26	8 (30.8%)	18 (69.2%)	0.036 ^s
Pyiform fossa	22	15 (68.2%)	7 (31.8%)	0.071 ^{ns}
Supraglottic larynx	25	17 (68.0%)	8 (32.0%)	0.054 ^{ns}
Base of tongue	9	7 (77.8%)	2 (22.2%)	0.088 ^{ns}
Paranasal sinuses	10	1 (10.0%)	9 (90.0%)	0.009 ^s

s= significant, ns= significant

p value reached from chi square test

Discussion:

In present study observe that Majority (55.0%) patients were male, mean age was found 56.1±14.7 years, 82(82.0%) patients were ipsilateral of metastatic, 48(48.0%) were moderate tumor, 40(40.0%) patients had pT stage 1, 77(77.0%) had pN stage N0, 31(31.0%) were neck dissection and 21(21.0%) were positive margin. Amit et al.¹⁰ observed that the study was comprised of 140 men (52%) and 130 women (48%), with a median age of 56 years (range, 20–88 years). Preoperative clinical and radiological workup revealed ipsilateral nodal metastases in 44 patients (16%), consisting of 33 in levels I to III and 11 in levels IV to V (all on the ipsilateral side). Kainuma et al¹¹ reported the mean age of the subjects (total, 162; 134 (82.7%) males and 28 (17.3%) females) at the time of treatment was 64.8 years (range 33–82 years). In total, 301 neck dissections (ipsilateral side, n = 162; contralateral side, n = 139) were performed in this study. Most of these studies^{12,13,14} made no distinction between neck dissection on the contralateral side and ipsilateral side. Punhani et al.² the age of the patients in the study ranged from

37-84 years with a mean age of 60 years. There were 15 male and 9 female patients. There were 15 cases of well-differentiated squamous cell carcinoma, 7 cases of moderately differentiated carcinoma and 2 cases of poorly differentiated carcinoma. On MR examination, 5 cases got upgraded from T2 to T3, 2 patients from T3 to T4 while only one patient was downgraded from T2 to T1 after MR examination. On imaging the lymph nodes, 5 cases got upgraded from N0 to N1 while 1 case was upgraded from N2a to N2b as noticed on MR images. Al Zahrani et al.¹ reported 57 patients between 16 and 80 years with a mean of 55.9 ± 16.7 years. Twenty (6%) patients were positive for level IIb lymph node metastasis. Three of them (3/20) were isolated and (17/20) were accompanied by other positive neck levels lymph nodes.¹⁵

In this study observed that total 26 cases were found parotid among them 8(30.8%) in metastatic neck node and 18(69.2%) in without metastatic neck node. Total 10 cases were found paranasal sinuses among them 1(10.0%) in metastatic neck node and 9(90.0%) in without metastatic neck node.

Which were statistically significant ($p < 0.05$) between two groups. Amit et al.¹⁰ reported The primary tumor sites were minor salivary glands of the oral cavity in 148 patients (55%), parotid gland in 54 (20%), submandibular glands in 39 (14%), sublingual glands in 12 (4%), sinonasal salivary glands in 25 (9%), and larynx in 2 (1%). The overall rate of occult nodal metastases among patients who underwent elective neck dissection was 17% (39 of 226 patients). Subgroup analysis revealed that the highest incidence rates of occult nodal metastases were in patients with oral cavity tumors (22%; 25 of 116), and in those with cancer of the paranasal sinuses (16%; 4/24). The lowest incidence of occult neck metastases was in patients with major salivary gland tumors (12%; 10/85); $p = 0.2$. In head and neck squamous cell carcinoma, an elective neck dissection is indicated if the probability of occult cervical metastases is above 15% to 20%.¹⁶ Kainuma et al.¹¹ reported The most common primary site was the oral cavity ($n = 51$, 31.5%), followed by the larynx ($n = 48$, 29.6%), hypopharynx ($n = 39$, 24.1%), and oropharynx ($n = 24$, 14.8%). According to primary cancer site in patients with LNM on the ipsilateral side was as follows: larynx (2/48, 4.2%), hypopharynx (4/39, 10.3%), oropharynx (4/24, 16.7%), and oral cavity (1/51, 2.0%). When considering only pN+ cases of metastasis to other levels (levels I–IV), the rate of level V metastasis was found to be 8.3% (8/96). Level V involvement was found in only three patients (3/66, 4.5%) in whom no metastasis to other levels was detected. Punhani et al.² observed that size, staging and lymph node metastasis are important determinants of prognosis as well as survival for oral carcinoma.³ As described by the previous researchers also,^{3,17} the presence of lymph node metastasis in the neck of the patients with cancers of head and neck region is an

important prognostic determinant in staging cancers and in treatment planning for such patients. Al Zahrani et al.¹ reported most of the tumors were located in the oral cavity, 43 (75.4%) followed by the larynx 7 (12.3%).

Conclusion:

In this study observed that majority of metastatic neck node were found pyriform fossa, supraglottic larynx, base of tongue which were 68.2%, 68%, 77.8% respectively. In oral cavity and parotid site also found 48.1% and 30.8% metastatic neck node.

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