

Nodal Metastasis in Neck: A Clinical Study of 60 Cases

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Abstract

Introduction: An enlarged neck node is frequently the first clinical manifestation of a neoplastic process in the head and neck region. The earlier the diagnosis is made, the greater the chance of improved survival. A common denominator to all head-neck malignancy is their ability to metastasize. Although metastasis is not a random event, some tumours have the propensity to extensive local invasion without metastasis whereas others metastasize early in their development.

Objective: To evaluate the different primary sites metastasizing to cervical lymph nodes.

Materials and Methods: A prospective observational study was carried out from July 2007 to March 2009 in the department of Otolaryngology and Head-Neck Surgery, Combined Military Hospital, Dhaka among 60 patients who had metastatic neck nodes with known primary in head-neck region and those with unknown primary were included in this study. Metastatic neck disease involving left supraclavicular or scalene nodes with a possible primary arising within the chest or abdomen were excluded from the study. All cases were advised for Fine Needle Aspiration Cytology (FNAC) of enlarged neck nodes. Tissue samples were taken from primary sites for histopathology.

Results: Metastatic neck disease is commonly encountered in Bangladesh. A primary lesion was identified in 53(88.33%) cases however primary sites found undetected in 7(11.67%) cases. Among the primary sites 43(81.13%) cases were seen to arise from squamous lining of upper aero-digestive tract and 10(18.87%) cases were having a nonsquamous origin arising from thyroid gland (13.33%) and parotid gland (3.33%). Among the known primary sites highest incidence of metastatic neck nodes was found with carcinoma-

larynx 22(36.66%) and pyriform fossa in 9(15%) cases. Forty seven (78.33%) patients were male and 13(21.67) were female with ratio being 3.6:1 of ages ranging from 20 years to 90 years.

Conclusion: Metastatic neck disease is commonly encountered in Bangladesh. Enlarged cervical nodes in an elderly patient should always be considered as metastatic until proved otherwise.

Key-words: Neck node, Metastatic neck node, Unknown primary.

Introduction

The metastatic neck nodes with or without primary sites are common presentation in otolaryngology department. A common phenomenon in head-neck malignancy is to metastasize to cervical lymph nodes with the exception of distant metastasis. The presence of cervical lymph nodes metastasis is the single most adverse independent prognostic factor in head-neck cancer. Most of the metastatic neck nodes are known primaries. The sites of known primaries are larynx, hypopharynx, tongue, tonsils, nasopharynx and other regions.

Survival rate depends on the primary site as well as site, size and level of lymph nodes involvement. The 5 years survival rate of the metastatic neck nodes is approximately by 50%. The survival rate has been noted to reduce further when multiple nodes are involved or extranodal spread of the disease occurs. So early treatment of the primary tumour and lymph nodes is essential for good locoregional control and reduction of incidence of distant metastasis and improved survival¹⁻³.

Primary sites can be identified by taking comprehensive history and initial physical examination. However, further

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evaluation by imaging, endoscopy and biopsy is required for confirmation diagnosis and effective management. Fine Needle Aspiration Cytology (FNAC) is now a well-established diagnostic test for evaluation of enlarged neck nodes. FNAC is a cost-effective, simple procedure with minimal complications is well tolerated by patients; can be done on an outpatient basis and is repeatable. The aim of this study was to evaluate the different primary sites of metastasizing neck nodes, known and unknown primaries incidence, histological diagnosis, known different primary sites, age and sex incidence⁴⁻⁶.

Materials and Methods

This prospective, observational study was carried out from July 2007 to March 2009, in the department of Otolaryngology and Head-Neck Surgery, Combined Military Hospital (CMH), Dhaka among 60 randomly selected patients who had metastatic neck nodes consisting of different age and sex group. Metastatic neck disease involving left supraclavicular or scalene nodes with a possible primary arising within the chest or abdomen were excluded from the study. Written informed consent was obtained from all the participants.

Metastatic neck nodes with a known primary both squamous and non squamous origin in head and neck region and those with an unknown primary were included in the study. After taking a comprehensive history every patient was subjected to a thorough physical examination with particular emphasis to ear, nose and throat region. Neck was examined very carefully for the presence of a primary disease as well as the site, size, number and level of lymph nodes involvement, their consistency and mobility. All cases were advised for FNAC of enlarged neck nodes. Cases revealed metastatic deposits in enlarged neck nodes in FNAC entered into the series.

Besides FNAC of neck nodes, Blood for TC, DC, Hb%, ESR, Urine for RIE and a chest X-ray P/A view were done in all cases. X-ray soft tissue nasopharynx lateral view, X-ray PNS occipitomental (OM) view, CT scan of nose and paranasal sinuses, larynx, nasopharynx, neck and base of the skull, ultrasonography of thyroid gland, parotid gland and neck, thyroid function test, FNAC of thyroid and parotid swelling were done in individual cases as dictated by clinical findings.

Tissue samples were taken from primary sites for histopathological examination for the confirmation of malignancy in every case. In cases of growth in oral cavity,

tongue and the diagnosis of malignancy was established by punch biopsy. In case of growth in nasopharynx, base of the tongue, oropharynx, larynx and pyriform fossa rigid endoscopic procedures were done under general anesthesia (G/A) and tissue diagnosis of malignancy was established. Diagnosis of non squamous cell carcinoma of thyroid gland and parotid gland was confirmed by FNAC and excisional biopsy.

Suspected of having occult primary disease were subjected to panendoscopy under general anesthesia (G/A) and tissue samples were taken from suspected areas (guided biopsy) and sent for histopathological examination.

Results

The population taken in this study was similar to population of traditional group in terms of age and sex of patient. FNAC of enlarged lymph nodes in neck showing metastatic deposit of squamous or non squamous origin was taken as primary selection criteria.

In the present series altogether 60 cases of metastatic neck nodes had been studied. Forty seven (78.33%) patients were male and 13(21.67%) were females with a ratio being 3.6:1 (Table- I) of ages ranging from 20 years to 90 years which is in fair agreement with almost all the studies revealing metastatic nodes to be more frequent in males above the age of 40 (Table-II).

A primary lesion was identified in 53(88.33%) cases, however primary sites remained undetected in 7(11.67%) cases (Table-III). Among the known primary sites highest incidence of metastatic neck nodes was found with carcinoma larynx 22(36.66%). Most of them were located in supraglottis of larynx. Incidence of carcinoma pyriform fossa was seen in 9(15%) cases, 4(6.67%) cases of metastatic neck nodes were seen to take origin from nasopharynx (Table-IV). Among the primary sites 43(81.13%) cases were seen to arise from squamous lining of upper aerodigestive tract and 10(18.87%) cases were having a non-squamous origin arising from thyroid gland (13.33%) and parotid gland (3.33%) (Table-V).

The study shows that metastasis from thyroid gland carcinoma is not a very uncommon entity. Ca-larynx (36.66%) was found to be most commonly occurring carcinoma spreading to neck nodes in males and Ca-thyroid (13.33%) in females.

Table-I: Sex distribution of metastatic neck nodes (n=60)

Type of Sex	Number of Cases	(%)
Male	47	78.33
Female	13	21.67

Table-II: Age Incidence of metastatic neck nodes (n=60)

Age group (years)	Number of Cases	(%)
20-30	05	8.33
31-40	08	13.33
41-50	19	31.67
51-60	14	23.33
61-70	07	11.67
71-80	05	8.34
81-90	02	3.33
91-100	-	-

Table-III: Incidence of known primary and unknown primary (n=60)

Type of Tumor	Number of Patients	(%)
Known primary	53	88.33
Unknown primary	07	11.67

Table-IV: Distribution of known primary sites (n=53)

Primary Site	Number of Cases	(%)
Larynx	22	36.66
Pyriiform fossa	09	15.00
Nasopharynx	04	06.67
Base of the tongue	03	05.00
Buccal mucosa	02	03.33
Oral tongue	01	01.67
Nose	01	01.67
Tonsil	01	01.67
Thyroid gland	08	13.33
Parotid gland	02	03.33

Table-V: Histopathological diagnosis of primary tumour (n=53)

Type	Number of Patients	(%)
Squamous	43	81.13
Non squamous	10	18.87

Discussion

Metastatic cervical lymph nodes are the commonest cause of cervical lymphadenopathy in adults and elderly^{6,7}. It may occur from various primary sites. Eighty five percent of the tumour deposited in the neck nodes originates from above the clavicle and 15% below the clavicles⁸. About 90% of the supraclavicular primaries are squamous. Most of the carcinoma arising from the surface epithelium of upper aerodigestive tract. Common presenting sites are larynx, pyriform fossa, tonsils, base of the tongue and nasopharynx. A small percentage of the supraclavicular primaries may be non squamous in origin arising from thyroid gland, salivary glands and skin of head and neck region^{8,9}.

Primary sites, however, may remain undiscovered in up to 10% cases. Carcinoma nasopharynx and carcinoma oropharynx are notorious for presenting first with neck nodes metastasis while primary remaining undetectable¹⁰. In this study, A primary lesion was identified in 53 (88.33%) cases, however primary sites remained undetected in 7(11.67%) cases.

In India, one study of metastatic neck node, male preponderance was noted with a male to female ratios of 1.8:1 and the ages ranged 8-94 years. In this study, 47(78.33%) patients were male and 13(21.67%) were females with a ratio being 3.6:1 of ages ranging from 20 years to 90 years. Metastatic neck node was uncommon upto the third decade of life. Ninety percent of the cases occurred in the fifth decade and above. The two most common incidences were seen in the age groups 61-70 years and 51-60 years at 99(26.1%) and 98(25.8%) cases, respectively. Among males, the highest incidence of metastatic neck node was found in the age group of 50-60 years whereas among females, it was in the age group of 61-70 years¹¹.

Metastatic neck node is one of the earliest presentations of malignancy, particularly in the head and neck. More than half of the total nodes are distributed in the neck draining the head and neck region which is studied with a dense capillary network of lymphatics. Thus, the rate at which malignancy spreads from this region to the neck is very high. Lymph node involvement was single in 360(94.7%) patients and multiple in 20(5.3%) cases. A study of metastatic neck disease done in the Netherland Cancer Institute, Amsterdam obtained 61.3% cases of single-node enlargement and 38.7% of multiple-node enlargement¹².

Another study shows that, ultrasonogram (Usg) alone was found to be an unreliable method for detecting occult lymph nodes metastasis; the accuracy never exceeded 70% (93 of 132). In contrast, US-guided FNAC had an accuracy of 89% (62 of 70), a sensitivity of 76% and a specificity of 100%. Because of this sensitivity and specificity of US-guided FNAC for the assessment of the No neck, this modality may play an important role in directing treatment of these patients on the future¹³.

Once a diagnosis of metastatic cancerous lymph nodes in the neck has been made, the most important next step is to try to find a primary tumour if at all possible. If a primary site cannot be found after an extensive search, then the diagnosis of cancer with an

unknown primary (CUP) is made. The presence and extend of nodal metastasis in head neck cancer has a great impact on treatment and prognosis. Pretreatment CT and MRI of the neck are commonly performed to evaluate for nodal metastasis^{14,15}.

In general, lesions in well lateralized primary sites (pyriform fossa, floor of the mouth) tend to metastasize to the ipsilateral side of the neck and lesion in a more midline position (supraglottic larynx, base of the tongue, posterior pharyngeal wall) show a higher incidence of bilateral metastasis. Contralateral metastasis more likely to occur from primary foci in the supraglottic larynx and base of the tongue than pyriform fossa or transglottic larynx which show a high rate of ipsilateral metastasis¹⁶.

Conclusion

Cervical metastasis by a tumour is firm statement of its aggressive malignant nature. Increasing age and male sex are associated with higher chances of developing metastasis. Any enlarged neck node must be investigated to rule out metastasis. This is not surprising considering the lack of knowledge of carcinogenesis, pathophysiology of metastasis and implications of tumour spread. Fortunately, great strides have been made in the understanding of the intricate processes related to metastatic disease. Proper understanding of anatomy and the detection of cervical metastatic disease is crucial to this process. Forthcoming techniques will also facilitate the detection of primary and metastatic disease. Treating a patient is not only treating a disease. This also means reducing the morbidity of the patient, reducing the economical burden of the patient and hospital as well. So early diagnosis and prompt treatment will serve these purpose.

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