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Original Article

Management of metastatic neck node in thyroid carcinoma

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Abstract:

Objective: To see the results of neck dissection in thyroid carcinoma with metastatic cervical lymphadenopathy.

Methods: This study was carried out in the Department of Otolaryngology at Bangabandhu Sheikh Mujib Medical University, Dhaka, for the period of two years from July 2006 to June 2008. Carcinoma thyroid patients with neck node were included in this study.

Results: Mean age of the patients were 43.5 years. Mean follow up period was 15 months. In cases where radical or modified radical neck dissections were done no recurrence were found. Recurrences were found in 13.33% cases where selective neck dissections were done. Overall recurrence in anatomical neck dissection is 7.40% only. But in berry picking recurrence rate is 66.66% cases. So in berry picking locoregional control of disease is less satisfactory than anatomical neck dissection.

Conclusion: In anatomical neck dissection locoregional control of disease is significantly more satisfactory than berry picking.

Key words: *Thyroid carcinoma, Papillary, Follicular, Medullary, Neck node metastasis.*

Introduction:

Carcinoma of the thyroid gland though uncommon it frequently encountered in Otolaryngology - Head & Neck Surgery Department of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka. World wide incidence of thyroid carcinoma is about 3.7 per 100000 populations per year.[1] In Bangladesh the incidence of differentiated thyroid carcinoma is not known but not infrequent. Clinically recognized thyroid carcinoma constitutes less than 1% of all human malignant tumours. There is a female preponderance of approximately 3:1.[2] Thyroid cancer can occur at almost any age; the majority of the patients, especially those with follicular, medullary and anaplastic cancers, are elderly. In adolescents and young adults, thyroid cancer is predominantly of the well-differentiated papillary type.

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The results of multicenter studies have indicated that regional lymph node metastases in patients with differentiated thyroid cancer, especially of a papillary type, have been frequent. Central (level-VI), ipsilateral, contra lateral, and mediastinal (level-VII) lymph nodes have been affected in 42-86%, 32-68%, 12-24%, and 3-20% of patients respectively. In 20% of patients only central lymph nodes have been affected.[3]

Papillary carcinoma of thyroid is the most common thyroid malignancy. It is associated with cervical lymph node metastases in 60% of patients. In follicular carcinoma lymph node were found in 10% cases, whereas in medullary carcinoma lymph nodes were involved in 50% cases.[4] Lymph node dissection individually or enblock is the mainstay of treatment for clinically evident cervical lymph node metastases. The surgical treatment options published in the literature include the classic radical lymph node dissection, the modified radical lymph node dissection, the selective lymph node dissection, and a 'berry picking' resection (in which only the abnormal lymph nodes are excise.[5]

The management of cervical lymph node metastases from differentiated thyroid carcinoma still remains controversial. Most surgeons perform a neck dissection for clinically apartment diseases. The extent of nodal dissection varies from regional to comprehensive.[6]

Papillary cancer of thyroid gland is well known as lymph tropic type of cancer. In more than 50 percent of all cases it metastasizes first and mainly in regional lymph nodes. The extent of surgical intervention remains a subject of controversy and discussions. In one study of 19 patients on retrospective analysis concluded that modified radical neck dissection is an effective and comparatively safe procedure for the treatment of patients with papillary thyroid cancer and regional lymph nodes metastases.[7] They also told that survival rate is better in patients who had undergone total thyroidectomy with radical neck dissection in comparison with those who had undergone total thyroidectomy with berry picking.[7,8]

In our country although neck dissection is done in few centers berry picking is still practiced by many surgeons. As there is no earlier study in Bangladesh, this series had focused on the mater, so that a uniform surgical protocol can be established.

Methods:

The objective of the study was to see the result of neck dissection in thyroid carcinoma with cervical lymph node metastasis.

A cross sectional study was carried out in the Department of Otolaryngology at Bangabandhu Sheikh Mujib Medical University from July 2006 to June 2008. In this period 30 cases of thyroid carcinoma with metastatic neck nodes were randomly selected.

Clinical examination and preoperative FNAC of thyroid as well as neck nodes was mainstay of selection of cases. Imaging of neck (CT, MRI) and frozen section biopsy were done in selective cases. Histopathological examination was done in all cases. Follow up for variable period from 3 months to 24 months was done in all cases.

Results:

In this study, 30 cases of thyroid carcinoma with metastatic neck nodes were included. All are treated by surgery for neck node metastases.

Table-I

Age distribution of patients of carcinoma thyroid with metastatic neck node (n=30).

Age group (Years)	No of Patients	Percentage (%)
0-10	0	00
11-20	1	3.33
21-30	4	13.33
31-40	8	26.66
41-50	7	23.33
51-60	7	23.33
61-70	3	10

Mean age of the study population is 43.5 years (SD=+/- 13.23). In this study age of the most of the patients wee found in 4th, 5th and 6th decade with frequency of 26.66%, 23.33% and 23.33 respectively.

Table-II

Levels of lymph node involved of thyroid malignancy (n=30).

Levels	Ipsilateral	Bilateral	No Patients	Percentage (%)
Level-I	0	0	0	0
Level-II	2	0	2	6.66
Level-III	17	1	19	5.26
Level-IV	18	2	21	9.52
Level-V	8	0	8	26.66
Level-VI	7	0	7	23.33
Level-VII	1	0	1	3.33

The majority of patients present with multiple level nodal diseases, with involved of level III, level IV and level V. In 3 cases level III and level IV were involved bilaterally. Involvements of level VI were found in 7 (23.33%) cases and level II were involved in 2 (6.66%) cases along with other levels. No lymph node was found in level I.

Table-III

Types of operation performed along with total thyroidectomy. (n=30)

Operations	No of patients	Percentage (%)
Radical neck dissection	1	03.34
Modified radical neck dissection	8	26.66
Selective neck dissection	15	50.00
Berry picking	3	10.00
Bilateral neck dissection	3	10.00

Bilateral neck node metastases were found in 3 (10%) cases. Bilateral neck dissections were done in these cases. In one case radical neck dissection was done in right side and selective neck dissection (anterolateral) was done in left side. In another case radical neck dissection was done in left side and selective neck dissection (lateral) was done in right side. In third case modified radical neck dissection was done in right side and selective neck dissection (central) was done in left side. No recurrence was found in these 3 cases.

Table-IV

Periods of follow up (n-30)

Follow up period	No of patients	Percentage (%)
3 months – 6 months	3	10
6 months – 12 months	5	16.67
12 months – 18 months	12	40
18 months – 24 months	10	33.33

Follow up were carried out in every cases. Longest follow up periods in this study were 24 months and lowest follow up periods were 3 months. Mean follow up periods were 15 months. SD= +/- 5.48.

Table-V

Recurrence of metastatic neck nodes in different types of operations.

Procedure done	No of patients	Recurrence	Percentage (%)
Radical neck dissection	1	0	0
Modified radical neck dissection	8	0	0
Selective neck dissection	15	2	13.33
Berry picking	3	2	66.66
Bilateral	3	0	0

Within these follow up periods recurrence were found in 4 (13.33%) cases. In radical neck dissections and modified radical neck dissections no recurrence were found. In selective neck dissection only 2 (13.33%) cases of recurrence were found. Recurrentce of two cases were found in berry picking.

Table-VI

Recurrence rate following neck dissection and berry picking.

Procedure	No of operations	Recurrence	Percentage (%)
Neck dissection	27	2	7.4
Berry picking	3	2	66.66

Radical neck dissection and modified radical neck dissection done for neck node metastases in thyroid carcinoma have good results with no loco regional recurrence within follow up period.

Discussion:

Lowest age was 14, a boy with papillary carcinoma with bilateral neck node metastases. Highest age limit was 70. Three patients (two females and one male) were found at this age limit. One of them suffered from medullary carcinoma.

Eighteen patients were male and 12 patients were female. Frequencies of metastases in lymph nodes in respect of sex in thyroid carcinoma were not mentioned in available literatures. Most of the patients 22 (73%) came from village. Patients of urban area were 8 (27%). Among male patients main occupations were firming. Most of the female patients were housewife (26.66%), 6(20%) patients were sedentary worker. Businesses were occupations of 16.66% of patients. Rest of the patients were engaged in different other jobs.

Among this 30 cases of carcinoma thyroid with metastatic neck node, 24 (80%) were papillary carcinoma, 4 (13.33%) were follicular carcinoma and 3 (6.66%) were Medullary carcinomas. It corresponds with the incidence of these types of tumours reported in the literatures.[4]

Among 30 patients of thyroid malignancy with metastatic neck node, 13 patients were below the age of 45 years and 27 patients were 45 of above. In 24 patients of papillary carcinoma with metastatic neck nodes, 12 patients were below the age of 45 years and 12 patients were 45 years and above. In 6 patients of follicular and medullary carcinoma 1 patients was below 45 years and 5 patients were 45 years and above. Over the age of 45 years carcinoma of thyroid gland is significantly higher, $X^2 = 7.45$ ($p<0.001$).

During neck dissection mediastinal (level VII) lymph nodes has to be removed in one case.

These figures correspond with the previous study where anterolateral group was at greatest risk of metastatic diseases.[9]

Diagnosis of lymph node metastases by FNAC in thyroid carcinoma were carried out in 28 (93.33%) cases. Only 2 (6.66%) cases lymph node metastases were found incidentally during surgery for thyroid carcinoma. In every cases histopathological examination were done postoperatively for confirmation of diagnosis. Sensitivity and specificity of FNAC in this study is similar to the previous study where one study shows sensitivity and specificity of FNAC ranges from 80 to 98 percent and from 58 to 100 percent, respectively.[10]

In berry picking of 3 cases, recurrence was found in 2 (66.66%) cases. These findings are similar to the previous study where data revealed better survival rates and quality of life in patients who had undergone total thyroidectomy with modified radical neck dissection in comparison with those who had undergone total thyroidectomy with berry picking.[7,8] Another study[11] shows 100% local recurrence following an initial neck dissection ($p<0.001$). In berry picking recurrence rate is high 66.66%. Recurrence rate is significantly higher in berry picking for management of neck node metastases in thyroid carcinoma than anatomical neck dissections, $Z=2.14$, $p<0.05$.

Although this is a small series, the cases of this study have been operated in a tertiary level hospital in our country. So this study has some credentials in reflecting the facts regarding management of regional neck node metastases in thyroid carcinoma.

The result of this study has been tested by Z test using the figures of different findings and has been found that the outcome of cervical lymph node metastases of thyroid carcinoma is significantly improved by neck dissection (selective / modified radical / radical) instead of berry picking.

Conclusions:

Anatomical neck dissection is an effective and safe procedure for the treatment of patients with carcinoma thyroid with regional lymph node metastases. Removal of only enlarged lymph nodes or berry picking should be abandoned because recurrence rate is significantly high and they do not fulfill the onco-surgical principles of neck dissections.

References:

1. Rains AJH. Charles HM. Bailey and Love's short practice of surgery, 23rd ed. London: ELBS, 2001; 707 - 726.
2. Russell RCG. Williams NS and Bulstrode, CJK. The thyroid gland and the thyroglossal tract, in: Bailey and Love's Short Practice of Surgery. 24th ed. London: Arnold. 2004; 776 - 804.
3. Rains AJH. Charles HM. Bailey and Love's short practice of surgery, 23rd ed. London: ELBS, 2000; 727-735.
4. Ramsden J. Watkinson JC. Thyroid cancer, In: Gleeson, M. Scott-Browns Otorhinolaryngology, Head and Neck Surgery. 7th edition. London: Edward Arnold. 2008; 2663 - 2700.
5. Caron NR. Clark OH. Papillary thyroid cancer: surgical management. Curr Treat Options Oncol 2005; 6: 311- 22.
6. Kupferman ME. Patterson DN. Mandel SJ. Livolsi V. Weber, R.S. Safety of MRND for differtiated thyroid carcinoma. Laryngoscope 2004; 114: 403 - 6.
7. Dimov RS. Deenichin GP. Damianliev RA. Ouchikov AP. Bacelov MH. Protohristov HT. et al. Safety and efficacy of MRND in patients with

papillary thyroid cancer and clinically evident lymph node metastases, Folia Med (Plovdiv) 2006; 121: 177 - 84.

8. Shaha AR. Management of neck in thyroid cancer. Otolaryngol Clin North Am 1998; 31: 829 - 31.

9. Grodski S. Cornford L. Sywak M. Sidhu S. and Delbridge L. Routine level VI lymph node dissection for papillary thyroid cancer: Surgical technique, ANZ Journal of Surgery 2007; 77: 203 - 208.

10. Bajaj Y. Thompson A. FNAC in the diagnosis of thyroid diseases, J Laryngol and Otol 2006; 120: 467- 469.

11. Musacchio MJ. Kim AW, Vijungco JD, Prinz RA. Greater local recurrence occurs with “berry picking” than neck dissection in thyroid cancer. Am Surg 2003; 69: 196- 6.