



PROPHYLACTIC CENTRAL LYMPH NODE DISSECTION IN NODE NEGATIVE PAPILLARY THYROID CANCER : A RETROSPECTIVE STUDY IN PERIPHERAL CANCER CENTRE

Amarendra Dharwar^{1*}, Gururaj Deshpande², Ramya Krishna³

^{1*} Assistant professor, Department of surgical oncology, VTSM peripheral cancer centre, Kalaburagi

² Assistant professor, Department of surgical oncology, VTSM peripheral cancer centre, Kalaburagi

³ Senior resident, department of surgical oncology, kidwai memorial institute of oncology, bangalore

***Corresponding author :** Dr Amarendra Dharwar

* Assistant professor, Department of surgical oncology, VTSM peripheral cancer centre, Kalaburagi

Abstract : Papillary thyroid cancers are most common thyroid cancers. They are associated with good prognosis. Central lymph node metastasis is associated with poor prognosis. We did a retrospective analysis of patients treated with surgery for papillary thyroid cancers. twenty one patients were included in study. We sought to find any relation between age, gender size of tumour and other histological features with central lymph node metastasis in patients with papillary thyroid cancers.

Introduction : Papillary thyroid cancer is most common thyroid cancer and carries best overall prognosis. The incidence of PTC has been increasing, partly due to increased diagnosis, imaging, cytology. (1,2)

During surgery, central lymph node metastases were observed in 20% to 90% of PTMC patients in different studies, despite negative preoperative imaging evaluation. (3,4,5). Overall survival of papillary thyroid cancers is around 95 percent. Lymph node metastases are also known to be an independent risk factor for local recurrence. (6). Central neck lymph node dissection (CLND) includes level VI, the anatomic area bounded by the hyoid bone superiorly, the sternal notch inferiorly, and the medial borders of the carotid sheaths laterally. The structures in this compartment are the esophagus, recurrent laryngeal nerves, trachea, parathyroid glands, thymus, and the thyroid gland. The included lymph nodes are the pre-tracheal, para-tracheal and pre-laryngeal (also called Delphian). Prophylactic central neck lymph node dissection remains contested.

The present study aims to evaluate the incidence of CLNM at a single institution over 3 years, and to identify possible risk factors associated with the presence of CLNM.

Materials and methods :

A retrospective study at single institution was conducted between 2021 to 2023. A total of 21 patients were included in the study. Benign disease, history of a previous thyroidectomy, non-PTC carcinoma (follicular/medullary/anaplastic) were excluded from the study. All the included patients underwent thyroid surgery plus prophylactic central lymph node dissection.

Patients were evaluated by clinical examination , imaging , fine needle aspiration cytology . All patients underwent total thyroidectomy and central compartment ymph node dissection . Histopathology report was evaluated for size of tumour , focality , number of lymph node yield , lymphovascular invasion , capsular invasion , number of positive lymph nodes . Independent sample t test and chi square test were applied .

Statistical analysis was conducted with SPSS version 23.0 . P value <0.05 was taken as significant .

Results :

21 patients were included in the study . Baseline and clinicopathological characteristics are shown in table 1 . There were 16 female and 5 male patients . Mean age of subjects were 39.7 years . All patients underwent total thyroidectomy and bilateral central lymph node dissection . Multifocal tumour was found in 8 patients , unifocal in 13 patients . Extracapsular spread was seen in 5 patients . Mean lymph node yield was 3.2 . Lymphovascular invasion was seen in 6 patients . Number of positive nodes were seen in 6 patients . (Table 1)

Table 1: Frequencies of Demographics

Frequencies of Demographics(n=21)		
Age Group (37=Median Age)		
< 37	8	38.1 %
=> 37	13	61.9 %
Gender		
Male	5	23.8 %
Female	16	76.2 %
unifocal or multifocal		
M	8	38.1 %
U	13	61.9 %
capsule invasion		
Positive	5	23.8 %
Negative	16	76.2 %
LN yield		
1	1	4.8 %
10	1	4.8 %
2	4	19.0 %
3	6	28.6 %
4	4	19.0 %
5	2	9.5 %
6	1	4.8 %
0	2	9.5 %
LVI		
Positive	6	28.6 %
Negative	15	71.4 %
CND positive		
Positive	6	28.6 %
Negative	15	71.4 %

Central lymph nodes positivity showed increased trend in younger age group patients but not statistically significant in our study . Multifocal tumours were more likely to have positive nodes than unifocal tumours (p value significant) . In our study the more the lymph node yield , greater were the chances of central node positivity . Lymphovascular invasion and capsule invasion showed no significant relation with central lymph node positivity in our study (Table 2) .

Table 2: Parameters and CND Positivity

Parameters	CND Positive (n=6 , 28.6%)	CND Negative (n=15, 71.4%)	P-Value
AGE (Mean±SD)	30.5±12.6	43.4±15.4	0.086
Gender	M:01, F:04	M:04, F:11	0.627
uni or multifocal	U:01, M:5	U:12, M:03	0.007
Capsule Invasion	P:02, 'N:04	P:03, 'N:12	0.517
LN Yield	6	15	<0.001
LVI	6	15	0.169

Table 3: CND Positivity

	Correlation	size	capsule invasion	LN yield
CND positive	Pearson's r	-0.08	0.141	-0.711
	df	19	19	19
	p-value	0.732	0.541	< .001

In present study size did not correlate with central node positivity (Table 3) .

Discussion :

Papillary thyroid cancers are considered relatively indolent carcinomas, often occult and incidental, with good prognosis and favorable outcomes .(7 , 8 , 9 , 10 , 11)

Age has been shown to be a risk factor [12 ,13, 14]. Our study observed that younger age(<37 yrs) was a significant risk factor for CLNM but not statistically significant .

Multifocality is generally considered a risk factor for lymph node metastases. Our study observed a statistically significant correlation between multifocality and central node positivity (table 2) .

In previous studies, the male gender has been suggested as an important risk factor for CLNM . (15 , 16) Our study didnt demonstrate a significant correlation between male gender and central lymph node positivity .

Capsular invasion and lymphovascular invasion did not show statistical significance with central lymph node positivity .(Table 2)

Our study showed a positive correlation between lymph node yield and central lymph node positivity (table 2)

Incidence of PTC has been steadily increasing within recent years, primarily due to the extensive use of thyroid ultrasonography and an improved rate of detection (17, 18 , 19 , 20) .

Considering that the high frequency of CLNM in cN0 PTMC cannot be ignored, it remains a controversial matter whether prophylactic central lymph node dissection should be performed (21 ,22 , 23) .

Our study identifies significant factors independent of each other to predict CLNM .

Drawback of this study was single centre , retrospective and small sample size .

Conclusion :

Our study demonstrates significant correlation between lymph nod yield , multifocality and trend between younger age group (<37 yrs) and central lymph node positivity .

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