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Therapeutic Lateral Neck Dissection in Papillary Thyroid Carcinoma

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ABSTRACT

Objective: Papillary thyroid carcinoma (PTC) has a high rate of lateral neck node metastases, lymph node metastasis (LNM) is a vital prognosis factor. The aim of this study was to evaluate morbidity and outcomes of therapeutic lateral neck dissection papillary thyroid cancer (PTC) with lateral lymph node metastasis (LLNM).
Methods: We conducted a retrospective analysis of 78 PTC patients who underwent neck dissections for the management of lateral cervical metastases from January 2010 and January 2020.
Results: 35.9% and 16.7% presented multifocality and bilaterality, respectively. Hashimoto's thyroiditis (16.7%), capsular invasion (23.1%), (12.8%) lymphovascular invasion, Extrathyroidal extension (19.2%). PTCs were distributed (38.5%) upper portion, (23.1%) middle portion, (38.5%) lower portion. Skip metastasis (10.3%), pT1 26%, pT2 42.5%, pT24.7% and pT4a 6.8%, tumor size 2.59±1.16 cm, (48.7%) stage I, (41%) stage II, (10.3%) stage III, metastasis in levels I, II, III, IV and V was 14.1%, 48.7%, 62.8%, 57.7% and 19.2% (15/78), (20.5%) had single-level metastases, and (52.6%) had multiple-level metastases. Ipsilateral metastases in (80.8%) and bilateral metastases in 19.2%. Retrieved LNs was 32 (range, 18–62). Metastatic LNs 4 (range, 1–9) LNR was 0.14±0.08, shoulder dysfunction (7.8%), chyle leakage (9%), nodal recurrence (7.4%), 10-year RFS&OS survival rate 92.2%, (97.1%).
Conclusion: Therapeutic lateral neck dissection (LND) is recommended in PTC patients with clinically LLNM, at the time of thyroidectomy. locoregional control is improved with accepted morbidity.
Key words: papillary thyroid cancer, LLNM, neck dissection, recurrence

INTRODUCTION

Papillary thyroid carcinoma (PTC) highest incidence thyroid cancer accounting for 85% of all thyroid carcinomas. Have a high incidence of cervical lymph node metastasis (20% to 90%) (1), lateral LNM rate is up to 64.2% (2), 10%–30% in lateral neck (3). Lymph node metastasis in PTC involves the central compartment first, followed by the ipsilateral lateral compartment and then the contralateral lateral compartment and the mediastinal lymph nodes. However,

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some patients develop lateral lymph node metastasis (LLNM) in PTC without central lymph node metastasis (CLNM); a skip metastasis in 0.6–37.5% (4). Neck sonar had high accuracy in diagnosis positive Neck (5). Ito et al, (6) demonstrated that PTC patients with clinically apparent (ultrasono-graphy-positive) lateral-compartment lymph node have aggressive and progressive characteristics, and associated with worse outcomes based on DSS and DFS. (6). Clinical lateral node metastases are an important and independent prognostic factor (7). Neck dissection in No neck without diagnosis of secondary is not have international recommendation comprehensive modified radical neck dissection (MRND) encompassing levels II–V was recommended for patients who were clinically N1b (5). The role of therapeutic neck lymph node dissection is well defined and should aim to clear involved compartments rather than removing simple affected lymph nodes (8). No place for node picking or single level resection. Recurrences after MRND range from 10% to 50% (9). Formal modified radical neck dissection sparing the SAN, internal jugular vein, and the sternocleidomastoid muscle is the treatment of choice and the only way to achieve radical excision (3,10,11). Positive nodes especially in the lateral neck, is associated with higher locoregional tumor and poorer prognosis for PTMC patients. Due to of multilevel lateral positive nodes and persistent/recurrent disease in the lateral neck, modified radical neck dissection (MRND) is recommended by the American Thyroid Association (ATA) for PTMC patients with clinically metastatic lymph nodes in the lateral compartment (12). Neck dissection could directly affect the QOL of patients by means of postoperative morbidity (13). Therapeutic lateral neck dissection (LND) should be undertaken in patients with PTC and clinically lateral LNM (LLNM) on the basis of palpation or imaging examination. However, determining the appropriate extent of LND remains controversial. Radical operations, such as those with increased extent of LND, may lead to clinically important postoperative morbidities (shoulder dysfunction, neck numbness, and neuropathic pain). Meticulous dissection is needed to save the spinal nerve with intact blood supply. Therefore, an oncologically effective therapeutic LND is critical to postoperative outcome (14).

Our objective evaluate morbidity and outcomes of therapeutic lateral neck dissection papillary thyroid cancer (PTC) with lateral lymph node metastasis (LLNM).

METHODS

We retrospectively reviewed the medical records of 78 patients who underwent a therapeutic neck dissection implies that nodal metastasis is apparent clinically (preoperatively or intraoperatively) (*fig. 1 a, b*), or by imaging at surgical oncology department South Egypt cancer Institute, Assuit University between January 2010 and January 2020. This work revised by institute scientific group, exclusion includes others thyroid cancer, without nodes positive, incomplete neck surgery. Physical examination evaluation of the lateral neck for metastatic disease screens for visible or palpable lymph nodes. Because of their anatomic locations, enlarged cervical lymph nodes may not be easily visible or palpable, especially when they are small, located behind the sternocleidomastoid muscles, or located behind a carotid artery or jugular vein and in level VI. Therefore, in order to make treatment decisions regarding neck dissection, it is very important that adequately evaluation of cervical lymph nodes for metastasis. Imaging modalities, such as ultrasonography (US) with or without FNAB, Ultrasound is becoming more important in the primary evaluation of lymph node metastases and in the follow-up of patients, US performed by experienced hands are considered by the

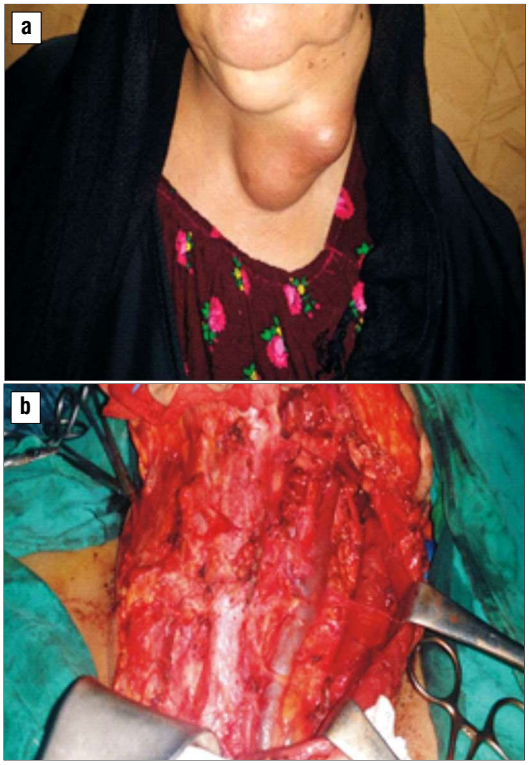


Figure 1 - a: clincal metastatic lateral lymph nodes; b: intraoperative metastatic lateral lymph nodes

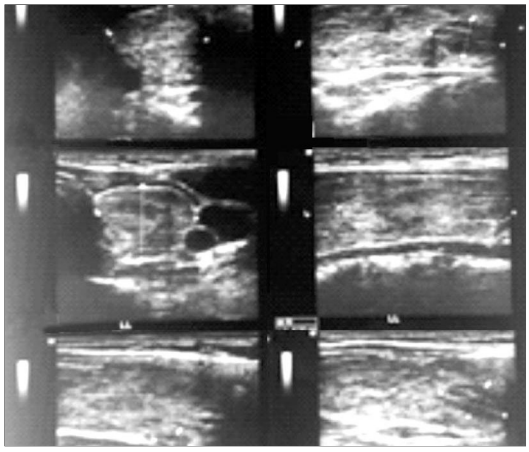


Figure 2 - Ultrasound, primary evaluation of lymph node metastases and in the follow-up, imaging modality of choice for detection of lateral neck metastases

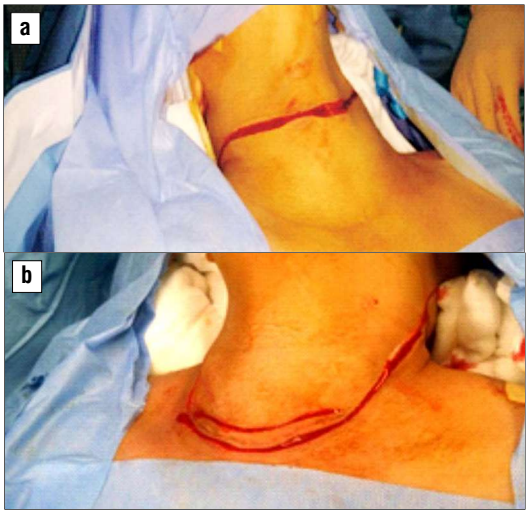


Figure 3 - a: Mid neck incsion allow bilateral lateral nodes dissection; b: ubron incsion for bilateral neck dissection

ATA, as the screening and surveillance imaging modality of choice for detection of lateral neck metastases (*fig. 2*). Neck computed tomography (CT), technetium-99m methoxyisobutylisonitrile scintigraphy (MIBI scan), and magnetic resonance imaging (MRI) can each be important in the assessment nodes. Also, intra-operative hisological may be helpful for lateral neck lymph node metastasis.

Figure 4 - Level II: spinal accessory nerve

SURGICAL TECHNIQUE

The incision is an extended mid neck thyroid incision or ubron incision (*fig. 3 a, b*). All levels of the neck can be resected, spinal nerve the most important to preserve (*fig. 4*) retraction of muscle. All fascial and nodal tissues contained in N1b (levels I, II, III, IV, V,) were routinely neck dissection. Level I: sub mental and submandibular groups (*fig. 5a*). Level II: base of skull upper hyoid bone bottom. Level III: from hyoid bine to cricoid (*fig. 5b*). Level IV: from cricoid to suprasternal notch (*fig. 5c*). Level V: Posterior triangle divide by omohyoid muscle. We preserve nerve, muscle and vien. Preserve the deep cervical plexus; Preserve the transverse cervical vessels; Identify the brachial plexus, the phrenic nerve and the vagus nerve; VII. The cervical portion of the thoracic duct can be as high as 3.5 cm superior to the sternal notch and only 2 cm lateral to the midline, If the thoracic duct has been damaged, both ends should be identified and ligated or

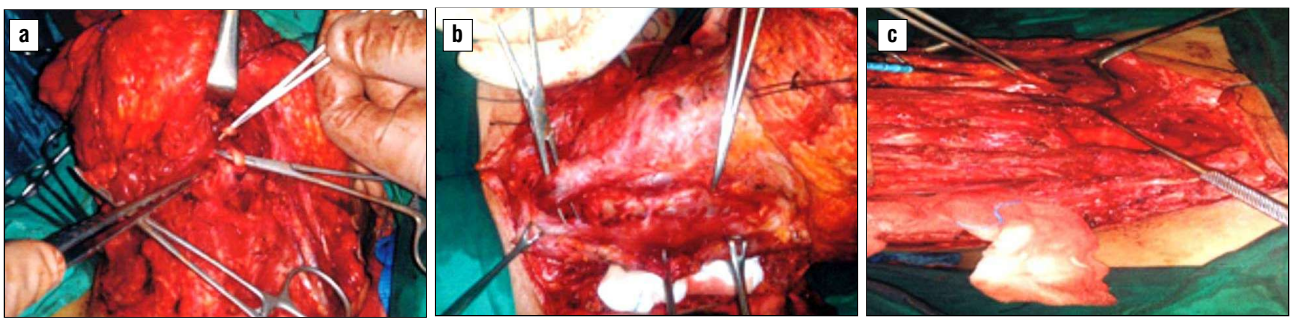


Figure 5 - a: Level I: sub mental and submandibular groups, lingual & hypoglossal nerves; b: level III: from hyoid to cricoid, cutting of omohyoid muscle; c: Level IV: lower jugular group

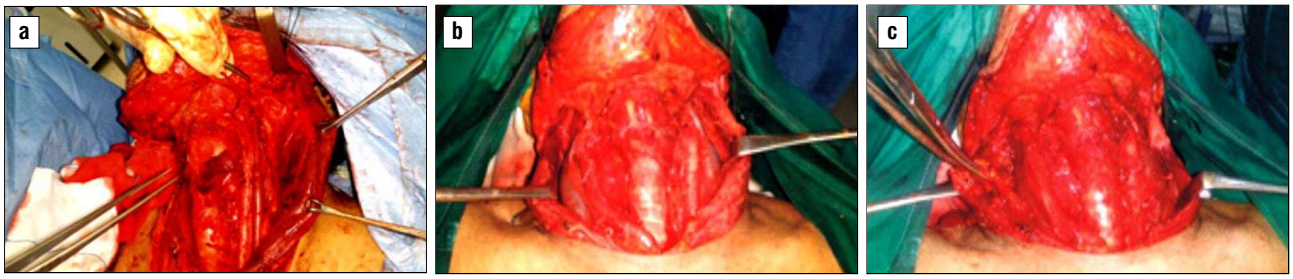


Figure 6 - a: y. Ipsilateral MRND supraclivucular dissection take care of thoracic duct; b: a bilateral MRND all lymph node in both neck dissected; c: a bilateral MRND all nodes removed preserving spinal nerve, muscle, vien

clipped, Failure to do so will lead to a chyle leak in the immediate postoperative period with its attendant morbidity. Ipsilateral the tumor in single site (*fig. 6 a*). A bilateral removing two side in central and more than one tumor (*fig. 6 b, c*). All patients were inserted with a drain after procedure. All PTMCs were proved by histological diagnosis. After surgery, all patients were treated with levothyroxine to suppress thyroid-stimulating hormone. All patients received high-dose (150 mCi) radioactive iodine (RI) therapy Follow-Up all patients by neck US and serum Tg at intervals of 3 or 6 months to examine whether there were any findings to indicate local recurrence. Either chest x-ray or CT scan was also performed once per year to detect potential lung metastases. Recurrence-free intervals were defined as the periods from the date of initial surgery to the date at which recurrence was diagnosed by neck US or CT plus cytological examination, detection of metastasis by scan (*fig. 7a*) debate arouud value of positron emission tomography. Distant metastasis was confirmed by the abovementioned imaging modalities by CT, MRI and Scaning (*fig. 7 b, c*).

Statistical methods

SPSS version 25.0 was used in data management graphical presentations. Mean and standard deviation and/or median and range were used for numerical data description. Number and percent described qualitative data. Nodal ratio was calculated by dividing number of metastatic nodes by number of harvested lymph nodes.

RESULTS

Overall 78 patients were included in the present study: 29 males and 49 females with the age range was

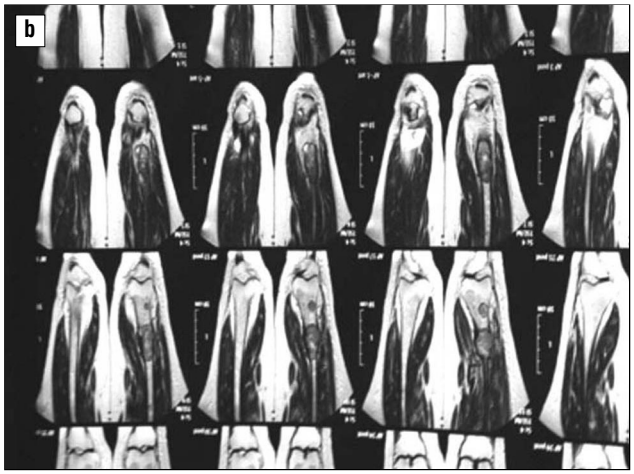


Figure 7 - a: whole-body 131I scanning, b: plain radiology bone distant metastasis, c: MRI distant metastasis

Table 1 - Demographics and clinicopathological characteristics of PTC patients with LLNM

		Count	Column N %
Multifocality	Absent	50	64.1%
	Present	28	35.9%
	Total	78	100.0%
Bilaterality	No	65	83.3%
	Yes	13	16.7%
	Total	78	100.0%
Hashimoto's thyroiditis	Absent	61	78.2%
	Present	17	21.8%
	Total	78	100.0%
Capsule invasion	Absent	60	76.9%
	Present	18	23.1%
	Total	78	100.0%
Lymphovascular invasion	Absent	68	87.2%
	Present	10	12.8%
	Total	78	100.0%
Extrathyroidal extension	No	63	80.8%
	Yes	15	19.2%
	Total	78	100.0%
Tumor location	lower portion	30	38.5%
	middle portion	18	23.1%
	upper portion	30	38.5%
	Total	78	100.0%
Skin metastasis	No	70	89.7%
	Yes	8	10.3%
	Total	78	100.0%
T stage	1	19	26.0%
	2	31	42.5%
	3	18	24.7%
	4	5	6.8%
	Total	73	100.0%
TNM Stage	I	38	48.7%
	II	32	41.0%
	III	8	10.3%
	Total	78	100.0%

33–73 years, with a median age of 47.5 years Demographics and clinicopathological characteristics of PTC patients with LLNM are reported in *table 1*. Patients underwent total thyroidectomy, as well as lateral neck lymph node dissection... 28(35.9%) and 13 patients (16.7%) presented multifocality and bilaterality, respectively. Hashimoto's thyroiditis (HT) was found in 13 patients (16.7%), Pathological capsular invasion was detected in18 (23.1%), while 10 (12.8%) patients showed lymphovascular invasion (LVI). Extrathyroidal extension occurred in 15 patients (19.2%). PTCs were distributed in, with 30(38.5%) in the upper portion, 18 (23.1%) in the middle portion, 30(38.5%) in the lower portion. Skip metastasis showed in 8 (10.3%) patients. (metastases to the lateral cervical compartment without metastasis to the central cervical compartment). The pathological T-staging was: pT1 26%, pT2 42.5%, pT24.7% and pT4a 6.8%, diameter was 2.59±1.16 cm, Using the TNM classification system, 38 patients (48.7%) had stage I disease, 32(41%) had stage II disease, and 8 (10.3%) had stage III disease (*table 1*).

Table 2 - Pathology and distribution of therapeutic lateral neck dissection

		Count	%
Level I	No	67	85.9
	Yes	11	14.1
	Total	78	100.0
Level II	No	40	51.3
	Yes	38	48.7
	Total	78	100.0
Level III	No	29	37.2
	Yes	49	62.8
	Total	78	100.0
Level IV	No	33	42.3
	Yes	45	57.7
	Total	78	100.0
Level V	No	63	80.8
	Yes	15	19.2
	Total	78	100.0
Single- level	No	62	79.5
	Yes	16	20.5
	Total	78	100.0
Multiple level	No	37	47.4
	Yes	41	52.6
	Total	78	100.0
Laterality	Ipsilateral	63	80.8
	bilateral	15	19.2
	Total	78	100.0

The incidence of metastasis in levels I, II, III, IV and V was 14.1% (11/78),48.7% (38/78),62.8% (49/78), 57.7% (45/78) and 19.2% (15/78), respectively. 16 patients (20.5%) had single-level metastases, and 41 patients (52.6%) had multiple-level metastases. ipsilateral metastases were detected in 63 patients (80.8%) and bilateral metastases in 15 cases (19.2%) (*table 2, chat 1*).

The median number of retrieved LNs was 32 (range, 18–62) positive LNs and LNs ratio to the resected LNs (the LN ratio [LNR]), The median number of metastatic LNs in methods 4 (range, 1–9) respectively. and the mean LNR was 0.14±0.08. %). The mean size of the involved LN was 1.91±0.66 cm.

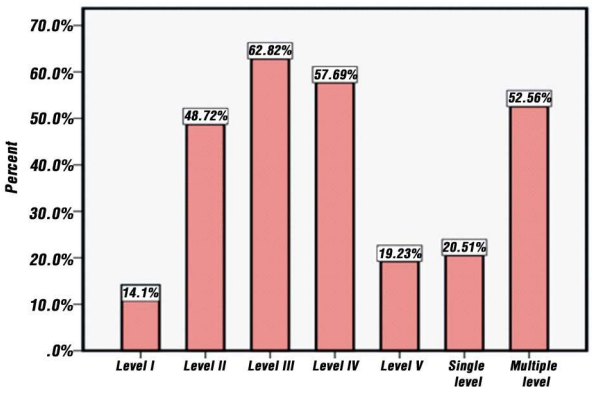
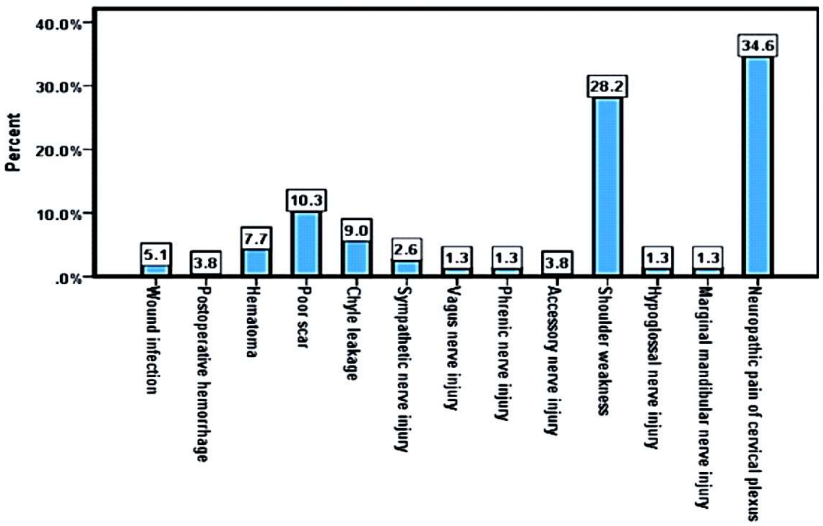


Chart 1 - Distribution of therapeutic lateral neck dissection

Table 3 - Neck dissection specimen pathology

	N	Mean	SD	Median (range)
Number of harvested lymph nodes	78	31.12	9.53	32.00 (18 – 62)
No. of metastatic nodes	78	4.12	2.00	4.00 (1 – 9)
Nodal Ratio	78	0.14	0.08	0.13 (0.03 – 0.35)
Size of the involved LN cm	77	1.91	0.66	1.90 (0.9 – 4.0)

Chart 2 - The incidence of hemorrhage



Shoulder syndrome with shoulder dysfunction in 6 patient (7.8%), and other complications including phrenic nerve injury in one patient (1.3%), cervical sympathetic trunk in Two patients (2.6%), and thoracic duct injury with Chyle leakage occurred in 7patient (9%), it was controlled nonoperatively with a fat-free diet.

The incidence of hemorrhage was reported as 3 patients (3.8%), sympathetic nerve injury as 2 patients 2.6%, vagus nerve injury as one patient 1.3%, phrenic nerve injury as one patient 1.3%, accessory nerve injury as 3 patients (3.8%), hypoglossal nerve injury as one patient 1.3%, %, injury to the marginal mandibular branch of facial nerve as one patient 1.3,neuropathic pain of cervical plexus as27 patients 34.6%, shoulder weakness as 22 patients 28.6%, incision-related infection as 4 patients 5.1% (*chart 2, table 3*).

At a mean follow-up of 53.1±21.4 months (range 11–102), 6 patients (7.4%) experienced nodal recurrence, requiring reoperation: two patient 3 years after initial surgical treatment and three 4 years after initial operation. a 10-year regional control rate of 92.2%, four patients had Distant metastasis dying of brain, Bone and lung. metastasis, cancer death (5.2%),10-year survival rate (97.1%).

DISCUSSIONS

Multiple guidelines recommend MRND from level II

Table 4 - Postoperative complications of Therapeutic lateral neck dissection

		Count	%
Wound infection	No	74	94.9
	Yes	4	5.1
Postoperative hemorrhage	No	75	96.2
	Yes	3	3.8
Hematoma	No	72	92.3
	Yes	6	7.7
Poor scar	No	70	89.7
	Yes	8	10.3
Chyle leakage	No	71	91.0
	Yes	7	9.0
Sympathetic nerve injury	No	76	97.4
	Yes	2	2.6
Vagus nerve injury	No	77	98.7
	Yes	1	1.3
Phrenic nerve injury	No	77	98.7
	Yes	1	1.3
Accessory nerve injury	No	75	96.2
	Yes	3	3.8
shoulder syndrome with shoulder dysfunction	No	72	92.2
	Yes	6	7.8
Hypoglossal nerve injury	No	77	98.7
	Yes	1	1.3
Marginal mandibular nerve injury	No	77	98.7
	Yes	1	1.3
Neuropathic pain of cervical plexus	No	51	65.4
	Yes	27	34.6

to V for N1b patients for either PTC (12). Ohshima et al. reported that patients who underwent thyroidectomy and bilateral MRND had better 10-year survival rate (97.1% vs. 83.7%) and lower cancer death (5.8% vs. 28.1%) (15). Positive nodes in the other side of the neck (12.7%) with diameter more than 2 cm the tumor in more than one site in thyroid and outside capsule (5) in our present study ipsilateral metastases were detected in 63 patients (80.8%) and bilateral metastases in 15 cases (19.2%), cancer death (5.2%), 10-year survival rate (97.1%), which is in accordance with previous study.

Tumor size was always considered as an important predictive factor for cervical lymph node metastasis in PTC, but the cutoffs were different. Ahn et al, (16) showed that tumor size ≥ 1 cm was the risk factor for CLNM, while Yan et al, (17) considered that tumor size ≥ 0.25 cm (18). A tumor with a small size (≤ 0.5 cm) tends to metastasize to the lateral neck without central compartment metastasis (4). The average tumor size was 1.34 ± 1.02 cm, ranging from 0.1 to 6 cm (18) in our present study tumor diameter was 2.59±1.16 cm.

The incidence of skip metastasis in PTC patients ranges from 3.0% to 19.7%, (19) ranges from 1.6 to 21.8%, which could be explained by different religions and sample sizes. However, previous studies were limited by low patient numbers and a heterogeneous patient population. the rate of skip metastasis was 11.6%, (20) in our present study Skip metastasis showed in 8 (10.3%) patients. which is comparable to that of certain studies.

Capsular invasion was not rare (13.7%), which is consistent with the rate reported by previous studies (9.9-26.8%) (21) in our present study. Pathological capsular invasion was detected in 18 (23.1%).

We recommend that patients with multifocality should receive more radical treatment (22) Shattuck et al, (23) described that individual tumor foci in multifocal PTC originate from discrete tumors independently. When tumor presented in more than one site in thyroid 36.4% and in both lobes in 32.1% we need to remove lymph nodes in both neck sides decrease disease recurrence (5). Considering cervical nodal involvement, bilateral metastases were detected in 29% of cases, when the tumour was located bilaterally in the gland, and in 13% of cases with a monolateral location. In only one case was the metastasis found contralaterally to the tumour (6) multifocality occurred in 40.7% of 273 PTMCs (21). PTC frequently presents with multifocal tumors in up to 80% of patients (4) in our present study 28 (35.9%) and 13 patients (16.7%) presented multifocality and bilaterality, respectively.

Extra thyroidal extension was also a risk factor for cervical LN metastasis. Ito et al, (7) indicated that obvious external invasion, rather than minor invasion, overtly affects prognosis (24). The extent of the tumor and it is minor outside the thyroid or major extent to other organs (5) in our present study Extrathyroidal extension occurred in 15 patients (19.2%).

Nie et al, (25) considered that tumor located in upper pole, CLNM, and tumor size > 1.5 cm were the risk factors for LLNM (18). Hunt et al, (26) reported that tumor in the upper part has a higher risk of lateral cervical metastasis. Differently, Lee et al, (27) supported that the risk of central and lateral cervical lymph node metastasis was higher in PTC patients with posterosuperior lesion. Kwak et al, (28) demonstrate ultrasonographic feature of superior have significant association with lateral nodal metastasis (9). In our present study PTCs were distributed in, with 30 (38.5%) in the upper portion, 18 (23.1%) in the middle portion, 30 (38.5%) in the lower portion.

Chronic lymphocytic thyroiditis more fibrosis and lymphocyte may kill the thyroid cancer and improving survival and decrease recurrence (5) in our present study Hashimoto's thyroiditis (HT) was found in 13 patients (16.7%).

In a meta-analysis of lateral metastasis in WDTC, 18 studies involving 1145 patients and 1298 neck dissections were analyzed, and the rates of metastasis in Groups II, III, and IV were 53.4%, 70.5%, and 66.3%, respectively. The rate of metastasis was found to be 25.3% in Group V in studies where Group V was not divided into VA and VB subgroups and 7.9% and 21.5% in Groups VA and VB, respectively, in studies in which Group V was separated as VA and VB, respectively. In the presence of lateral neck metastases, routine excsion Groups IIA, IIB, III, IV, and VB has been recommended in light of these data (29). Sivanandan and Soo, (30) described the most commonly involved neck levels in PTC. 75 patients with primary PTC, levels II–IV were frequently involved, with level III being the most common site for lateral neck metastases. Kupferman et al, (31) described similar results in their study of 39 patients (44 neck dissections). The distribution of nodal positivity in levels I, II, III, IV, and V in this study was14%, 52%, 57%, 41%, and 21%, respectively., other studies have also demonstrated that levels II–IV are the most frequently involved cervical nodal basins metastatic PTC commonly present in levels II (45%), III (57%), and IV (60%) (32). Level III nodes were the most frequently involved nodes, followed by Levels IV, II and V (19). Level VI is the most common metastatic site for thyroid cancer (24). Kupferman et al, (31) recently reported a

clinical series that demonstrated metastatic involvement in level III nodes (57%), as well as involvement of levels II, IV, and V in 21 to 52% of specimens, Kupferman et al, (31) demonstrated a high incidence of metastatic disease in levels II and III (52 and 57%, respectively) and multilevel lymph node metastases in 68% of the patients (33). LLNM mainly occurred at levels II, III, and IV with frequencies of 45.9%, 62.7%, and 55.5%, respectively. These frequencies are in the ranges of the percentages reported for levels II, III, and IV LNM, respectively, 27–65%, 57–82%, and 41–82% in a meta-analysis by Eskander et al, (34) level V LNM in solitary PTC with clinically LLNM was the least frequent (12.7%) type of metastasis (14). Our study adds support to this previous data with levels II–IV were frequently involved, the incidence of metastasis in levels I, II, III, IV and V was 14.1% ,48.7% ,62.8%, 57.7%, and 19.2%, respectively.

Higher LNY is associated with a lower recurrent rate, (35) nodal extra-capsular spread was found to be a highly predictive prognostic factor either of distant metastasis or loco-regional recurrence (10). Lateral-compartment lymph node (LLN) metastasis was 32.33% (75⁄232). The number of harvested LLNs was 44.1617.74 (range: 16–102). The numbers of metastatic LLNs were 5.193.96 (range: 1–26), (1), Ito et al, (7) reported that >5 positive lateral neck LNs affected RFS (36) Moreno et al, (37) suggested that 10 positive nodes were the cutoff that maximized sensitivity and specificity. We shoud Excsie ten lymph nodes as cutoff removing five lymph nodes is not sufficient (36). The LNR is likely to be an important prognostic factor for risk of recurrence in the previous studies., the cutoff values for the LNR range from 0.26 to 0.86 in different studies. Vas Nunes et al, (38) reported that PTC patients with an LNR of 0.30 or higher had a 3.4 times aggressive compared with patients with an LNR of 0.00 (39). Our study the median number of retrieved LNs was 32 (range, 18–62), The median number of metastatic LNs in methods 4 (range, 1–9) respectively. and the mean LNR was 0.14±0.08. %). The mean size of the involved LN was 1.91±0.66 cm.

Chylothorax is a rare, but major complication seen anecdotally after thyroid surgery combined usually with a lateral neck dissection, A systematic review by Merki et al, (40) report the incidence of chylothorax after total thyroidectomy and neck dissection was 1.85% and 7.3% when using a thoracic approach, (41, 13, 42) in our series thoracic duct injury with Chyle leakage occurred in 7 patients (9%), it was controlled nonoperatively with a fat-free diet.

Kim et al, (43) detected total and microscopic metastasis rates in Group V as 13.9% and 8.6%, respectively. In patients with Group V dissection, the recurrence rate was determined as 2.7%, and patients with routine dissection had higher rates of shoulder syndrome with shoulder dysfunction (9.1% vs. 2.7%, p=0.002) (29). Lim et al, (43) also concluded that Level V could be omitted if no positive LN was found in Level IV (24) Kupferman et al, (31) reported that even though the SAN preserved, postoperative shoulder dysfunction occurred in 27% of patients who underwent RND as a result of excessive retraction or ischemia. In our study, permanent SAN injuries were very rare events, with rates of 0% in one and 1.2% in two. This finding could be explained by all LND procedures having been performed by an experienced surgeon with a good anatomical knowledge of the SAN course (3) a 65% shoulder disability so many recommending not to dissect level two (11) even after complete nerve preservation, shoulder pain has been observed in 79% of patients after radical neck dissection, 65% of patients after MRND and 52% of patients after SND (9). The most common morbidities associated with neck dissections are spinal accessory nerve dysfunction and related shoulder disabilities. Shoulder dysfunction is due to traction injury or interruption of blood supply of the spinal accessory nerve during dissection of level IIb. This dysfunction may be avoided by preserving the level IIb lymph nodes during neck dissection in selected patients. However, some studies have shown temporary functional deterioration of the spinal accessory nerve even when level IIb is not dissected (44) in our series metastasis rates in Group V 19.2% and shoulder syndrome with shoulder dysfunction in 6 patients (7.8%).

Lateral neck lymph node dissection is prone to accidental injury and complications because of the complexity of neck dissection. The common complications include, hemorrhage, chyle leakage or lymphatic leak, nerve injury (sympathetic nerve, vagus nerve, phrenic nerve, accessory nerve, hypoglossal nerve, marginal mandibular branch of the facial nerve, brachial plexus, and cutaneous cervical plexus), incisional hydrops, incision infection, skin flap necrosis, facial swelling, and parotid gland leakage. The incidence of hemorrhage was reported as 0.29–2%, chyle leakage as 6–8.3%, sympathetic nerve injury as 5%, vagus nerve injury as 0.14%, phrenic nerve injury as 0.14%, accessory nerve injury as 0.29–6%, hypoglossal nerve injury as 0.29%, injury to the marginal mandibular branch of facial nerve as 0.44%, neuropathic pain of cervical plexus as 48%, shoulder weakness as 27%, incisional hydrops as 2%, incision-related infection as 3–8%, saliva leakage as 0.14% (45). Postoperative hemorrhage can be prevented by sharping dissection if occur re surgery is requird (42) in our series The incidence of hemorrhage was reported

as 3 patients (3.8%), sympathetic nerve injury as 2 patients 2.6%, vagus nerve injury as one patient 1.3%, phrenic nerve injury as one patient 1.3%, accessory nerve injury as 3 patients (3.8%), hypoglossal nerve injury as one patient 1.3%, %, injury to the marginal mandibular branch of facial nerve as one patient 1.3, neuropathic pain of cervical plexus as 27 patients 34.6%, shoulder weakness as 22 patients 28.6%, incision-related infection as 4 patients 5.1%.

Kim et al, (43) reviewed 126 patients who underwent therapeutic LND with total thyroidectomy and bilateral central neck dissection concomitantly for PTC at the National Cancer Center in Korea. Recurrence occurred in 22 patients (17.5%), with 1 patient (0.8%) dying of brain metastasis. They had 16 lateral neck recurrences (including contralateral lateral neck recurrences) for a lateral neck recurrence rate of 12.7%; 12 patients recurred in the previously dissected ipsilateral lateral neck. Lastly, Forest et alreported an 11.8% recurrence rate in 34 patients who underwent central and LND with the initial management of their PTC (46). Randolph et al, (47) showed that the presence of clinically evident lymph nodes had an average risk of local recurrence of 22% compared with 2% for patients with clinically unsuspicious cervical lymph nodes regardless of surgical resection extension (8) in our series 6 patients (7.4%) experienced nodal recurrence, requiring reoperation: a 10-year regional control rate of 92.2%, four patients had distant metastasis dying of brain and lung. metastasis, cancer death (5.2%), 10-year survival rate (97.1%).

This study does have several limitations that must be considered. The strength of the findings is limited by the retrospective design, and single institution nature of the analysis. Due to the number of patients required and follow-up time needed to see a difference in outcomes, another limitation of this study is the lack of distinction between microscopic and macroscopic lymph node metastases. some pathological data (including extra-nodal extent) were not available for analysis.

CONCLUSION

Therapeutic lateral neck dissection (LND) levels (1-VI) are recommended in papillary thyroid carcinoma (PTC) patients having clinically positive neck nodes can be performed with low morbidity and accepted oncological outcomes.

Conflict of interest

All author declare that they have no conflict of interest.

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