

ROLE OF LEVEL V LYMPH NODE DISSECTION IN N1b PAPILLARY THYROID CARCINOMA

By

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ABSTRACT

Background: For the N1b papillary thyroid carcinoma (PTC) patients, modified radical neck dissection (MRND) encompassing levels II – V is generally recommended. However, routine level V dissection is controversial because of the low incidence of metastasis/recurrence in level V and the increased morbidities associated with level V dissection.

Objective: This study was designed to determine the clinical risks and benefits of routine level V dissection in N1b PTC patients with clinical negative level V.

Patients and Methods: This study was a prospective, comparative, randomized and descriptive study of 40 patients suffering N1b papillary thyroid carcinoma. The patients were divided into two equal groups: Group 1 subjected to MRND, and Group 2 subjected to SND. Both groups were compared for age, sex, intraoperative (duration of surgery and complications) and postoperative results (complications and distribution of lateral nodal recurrence).

Results: Under a matched condition, occult level V metastasis was observed in 5.0%. The MRND group exhibited a significantly longer operation time compared with the SND group. The amount of drainage was significantly more in the MRND group compared with the SND group. Time of drain removal was significantly less in the SND group compared to MRND group. Chyle leak was more frequent in the MRND group compared with the SND group but not statically significant. Level V recurrences did not occur in 3 recurred N1b PTC patients who underwent unilateral MRND and SND. Shoulder syndrome encompassing shoulder dysfunction and pain was significantly more frequent in the MRND group than in the SND group. There were no statistically difference between the groups according to infection, transient hypocalcaemia, transient RLN palsy and nodal recurrence.

Conclusion: Because of the low incidence of metastasis/recurrence in level V and the clear evidence of increased morbidities, level V dissection in N1b PTC patients may be reserved for those clinically/radiologically evident metastasis in level V.

Key words: Papillary thyroid carcinoma, lateral lymph node metastasis, level V dissection, level V metastasis, modified radical neck dissection, selective radical neck dissection.

INTRODUCTION

Thyroid carcinoma is the most common type of malignant endocrine tumors, accounts for 1% of all human malignant tumors and 33% of the head and neck malignant tumors. Among the thyroid carcinoma, 80–85% are papillary thyroid carcinoma (PTC) (*Liu et al., 2019*). In Egypt, thyroid cancer is the fifth most frequent cancer in females accounting for 3.6% of all malignancy in women. With an incidence that ranged between 3.5% in upper Egypt in 2008 to 3.9% in 2011 in lower Egypt (*Mohamed et al., 2016*). PTC shows a mild biological behavior and has an excellent prognosis. Adequate management leads to a survival rate in excess of 90%. Death due to PTC is very rare. However, cervical lymph nodal metastases are common (*Pacini et al., 2018*). Cervical lymph node metastases are found in 20–50 per cent of cases and in up to 90 per cent when micro-metastases are included. Cervical lymph node metastases are considered an independent risk factor for loco-regional recurrence and increased morbidity. Many population-based studies demonstrated that cervical lymph node metastasis has a negative effect on survival with varying levels of significance (*Mansour et al., 2018*). In general, therapeutic lateral neck dissection is recommended for PTC patients if lateral compartment LN metastases are confirmed by clinical examination or radiological evaluation (*Won et al., 2019*). MRND refers to the excision of the lateral neck LNs, including levels II – V, with preservation of one or more non-lymphatic structures, such as the spinal accessory nerve, internal jugular vein, or sternocleidomastoid muscle. While, SND refers to the excision of

suspicious lateral neck LNs accompanied by preservation of one or more of the LN groups that are routinely removed in MRND. Level I dissection is generally excluded from MRND because of the rarity of metastatic disease (*Ahmadi et al., 2011*). Level V has been particularly controversial in therapeutic lateral neck dissection in PTC patients as level V dissection is the main procedures leading to postoperative complications due to injuries of the spinal accessory nerve (*Gane et al., 2018*). Therefore, a number of studies have examined the distribution of metastatic LN and the possibility of omitting level V during neck dissection. However, there have been no clear conclusions, and this remains a subject of ongoing debate (*Bozkurt, 2019*).

THE AIM OF THIS STUDY

Was to determine the clinical risks and benefits of routine level V dissection in N1b PTC patients.

PATIENTS AND METHODS

This study was approved by the institutional review board at Al-Azhar University Hospitals. We conducted a retrospective cohort study, by analyzing data collected between September 2017 and September 2019. A total of 40 patients who met the following inclusion and exclusion criteria were enrolled.

Inclusion criteria:

1. Performance Status (PS) I or II.
2. Age blew 60 years old.
3. Pathologically proven PTC.
4. Clinically and pathologically proven unilateral lateral cervical LN metastasis (levels II – IV).

5. Clinically and radiologically free level V cervical LN.

Exclusion criteria:

1. Performance status (PS) III or IV.
2. Age above 60 years old.
3. History of previous neck surgery.
4. Non-PTC carcinomas (follicular/ medullary/ anaplastic).
5. Bilateral cervical LNs metastasis.
6. Distant metastasis.

Patients were randomly classified into two groups, The first group included twenty patients and they have been submitted for total thyroidectomy with central neck dissection and unilateral MRND (levels II – V dissection) and the second group included twenty patients and they have been submitted for total thyroidectomy with central neck dissection and unilateral SND (levels II – IV dissection). Lateral neck dissection before total thyroidectomy and central neck dissection were performed. Lateral neck dissection included modified radical neck dissection (MRND) and selective neck dissection (SND). Level I dissection was not performed. During surgery, the cervical LN levels present in the dissected specimens were classified individually with a labeling suture. The thyroid specimen and cervical lymph nodes removed were assessed for: cell type of

the main lesion, primary tumor size (longest diameter of the largest lesion), location, multifocality, bilaterality, extra thyroid extension (ETE), lymphovascular invasion and regional LNs metastasis. After the initial surgery, all patients underwent regular follow-up within 12 months with clinical evaluations including physical examinations, ultrasound (US), computed tomography (CT), iodine-131 scan and serum thyroglobulin testing. After total thyroidectomy, thyroid stimulating hormone suppression therapy (serum thyroid stimulating hormone level < 0.5 mU/l) by levothyroxine with radioactive iodine (RAI) ablation as an initial postoperative therapy. Recurrence is defined as the presence of metastatic LN by cytological examination from a fine needle aspiration biopsy. Statistical analysis was performed using SPSS version 22.0. Statistically significant differences were defined as those with $p < 0.05$. Continuous variables were presented as mean \pm standard deviation (SD), whereas categorical variables were presented as the number of cases with percentage. The chi-square test was used to compare differences between categorical variables, whereas Student's t-test was used to test the significance between continuous variables. Fisher's exact test was used when expected cell count of more than 25% of cases was less than 5.

RESULTS

Clinicopathological characteristics of patients in both groups:

In MRND group, 15 (75.0 %) were women and 5 (25.0 %) were men. The mean age was 39.25 years, Right sided MRND was performed in 12 (60.0 %) patients, whereas left-sided MRND was performed in 8 (40.0 %) patients. The mean tumor size was 3.11cm ranging from 2 cm to 4cm. Bilaterality, multiplicity, microscopic ETE,CLT and LVI&CI were seen in 4 (20.0%), 5 (25.0%), 13 (65%), 2 (10.0%) and 20 (100.0%) patients, respectively. Of 20 patients, pathology of PTCs were 16 (80%) conventional PTC, 2 (10.00%) follicular variant, 1 (5.0%) diffuse

sclorising and 1(5.0%) tall cell variant .In SND group, 14 (70.0 %) were women and 6 (30.0 %) were men. The mean age was 41.5 years, Right sided SND was performed in 5 (25.0 %) patients, whereas left-sided SND was performed in 15 (75.0 %) patients. The mean tumor size was 3.21 cm ranging from 2 to 4 cm. Bilaterality, multiplicity, microscopic ETE,CLT and LVI&CI were seen in 6 (30.0%), 4 (20.0%), 15 (75.0%), 3 (15.0%) and 20 (100.0%) patients, respectively. Of 20 patients, pathology of PTCs were 17 (85.0%) conventional PTC, 2 (10.0%) follicular variant, 1 (5.0%) diffuse sclorising and 0 (0.0%) tall cell variant (Table1).

Table (1): Clinicopathological characteristics of patients in both groups

Clinicopathologic characteristics	MRND group N (%)	SND group N (%)
sex		
female	15(75%)	14(70%)
male	5(25%)	6(30%)
Age (Mean ±SD)	39.25 ± 11.46	41.5 ± 10.9
< 45	13 (65%)	11 (55%)
≥ 45	7 (35%)	9 (45%)
Size(Mean ±SD)	3.11± 0.6103	3.21± 0.6037
Side		
Right	12 (60%)	5 (25%)
Left	8 (40%)	15 (75%)
Bilaterality	4 (20.0%)	6 (30.0%)
Multiplicity	5(25.0%)	4(20.0%)
PTC Variant		
Conventional	16 (80%)	17 (85.0%)
Follicular	2(10.00%)	2(10.0%)
Diffuse sclerosing	1(5.0%)	1(5.0%)
Tall cell	1(5.0%)	0(0.0%)
Associated lesions		
CLT	2 (10.0%)	3 (15.0%)
ETE	13(65.0%)	15(75.0%)
LVI & CI	20(100.0%)	20(100.0%)

PTC, Papillary thyroid carcinoma; MRND, Modified radical neck dissection; SND, Selective neck dissection; SD, Standard Deviation; CLT, Chronic Lymphocytic thyroiditis; ETE, extra thyroidal extension; LVI, Lymphovascular invasion; CI, Capsular invasion

Distribution of lateral LNs metastasis in both groups:

In MRND group, Level III lateral neck nodes were involved in 16 cases (80.0%). However level IV and level II were involved in 15 cases (75.0 %) and in 11cases (55.0%) respectively. Of the 20 dissections, 4 (20.3 %) and 16 (80.0 %), had nodal metastases in single and multiple levels, respectively. Skip metastases, defined as lateral LN metastasis without central LN metastasis,

were found in two cases (10%). Even when preoperative US and CT did not show any evidence of metastasis in level V, occult metastatic LNs were detected in one case (5.0%). In SND group, 6 (30.0 %) and 14 (70.0 %), had metastatic LNs single level and multiple levels, respectively. Level III metastases were evident in 17 cases (85.0%) while level IV and II were evident in 13 (65.5%) and 12 (60.2) cases respectively. Skip metastases were found in one case (5.0%). (Table 2).

Table (2): Distribution of lateral LNs metastasis both groups.

Groups	MRND group N (%)	SND group N (%)
Distribution of lateral LN metastasis		
Regional LN Mets		
Central	18 (90%)	19 (95%)
Lateral	20 (100%)	20 (100%)
Skip Mets	2 (10%)	1 (5%)
Lateral LN Mets		
Level II	11 (55%)	12 (60%)
Level III	15 (75%)	13 (65%)
Level IV	16(80%)	17(85%)
Level V	1(5%)	---
Simultaneous lateral Mets		
Single level	4 (20%)	6 (30%)
Multiple level	16 (80%)	14 (70%)

MRND, Modified radical neck dissection; SND, Selective neck dissection; LN, lymph node; Mets, Metastases

Distribution of lateral neck recurrence in both groups:

In MRND group, the median follow-up time was 18.2 months. Lateral neck recurrence was found in 1 (5.0 %) and it was ipsilateral and occurred in level III. In

SND group, the median follow-up time was 17.95 months. Lateral neck recurrence was found in 2 (10.0%) and they were ipsilateral and occurred in level II and level III (Table 3).

Table (3): Distribution of lateral neck recurrence in both groups.

Groups	MRND group	SND group	X2	P-value
	N (%)	N (%)		
Nodal recurrence				
Positive	1(5.0%)	2(10.0%)	0.36	0.55
Negative	19 (95.0%)	18 (90.0%)		

MRND, Modified radical neck dissection; SND, Selective neck dissection

Surgery-related outcomes in both groups:

Under a matched condition, the MRND group exhibited a significantly longer operation time (221.25 min vs. 172.35 min, $p < 0.00001$) compared with the SND group. The amount of drainage was significantly more in the MRND group compared with the SND group (321ml vs. 271.5 ml, $p = 0.033986$). Time of drain removal was significantly less in the SND group compared to MRND group (3.95 days vs. 4.65 days, $p=0.016358$). There was no statically difference between the two groups according to post op hospital stay and follow up (3.8days vs. 3.05 days, $p=0.093345$) and (18.2mon \pm 3.4883 vs. 17.95 \pm 3.4713, $p=0.821497$) respectively. Chyle leak was more frequent in the MRND group compared with the SND

group but not statically significant (10% vs. 0.0 %, $p = 0.2308$).Furthermore, “shoulder syndrome” encompassing shoulder dysfunction and pain, was significantly more frequent in the MRND group compared with the SND group (30.0 % vs. 0.0 %, $p = 0.0202$).there were no cases of intra and post-operative hemorrhage, nerve injury (sympathic chain, vagus, phrenic and brachial plexus) and adjacent structure injury (Trachea, Esophagus, Carotid artery and IJV) in both groups .there were no statically difference between the MRND group and SND group according to infection, Transient hypocalcaemia, Transient RLN palsy and nodal recurrence (10.0% vs.5.0% $p= 0.548$) ,(30.0% vs.35.0% $p= 0.735$), (5.0% vs. 0.0% $p= 1.0$) and (5.0% vs.10.0% $p=0.548$) respectively (Table 4).

Table (4): Surgery-related outcomes in both groups.

Groups	MRND group	SND group	P-value
Surgery related outcomes			
Operative time (min) mean ±SD	221.25 ±27.52	172.35 ±25.275	< 0.001
Drainage amount (ml) mean ±SD	321 ±72.1766	271.5 ±70.133	0.034
Time of drain removal (day) mean ±SD	4.65 ±0.9333	3.95 ±0.8255	0.016
Post op hospital stay (day) mean ±SD	3.8 ±1.281	3.05 ±1.468	0.093
Follow up (month) mean ±SD	18.2 ±3.4883	17.95 ±3.4713	0.821
Transient hypocalcaemia			0.73
Positive	6 (30.0%)	7 (35.0%)	
Negative	14(70.0%)	13(65.0%)	
Permanent hypocalcaemia			0.55
Positive	1 (5.0%)	2 (10.0%)	
Negative	19(95.0%)	18(90.0%)	
Permanent RLN palsy			>0.05
Positive	1 (5.0%)	0 (0.0%)	
Negative	19(95.0%)	20(100.0%)	
Chyle leak			>0.05
Positive	2 (10.0%)	0 (0.0%)	
Negative	18 (90.0%)	20 (100.0%)	
Wound infection			0.55
Positive	2 (10.0%)	1 (5.0%)	
Negative	18(90.0%)	19 (95.0%)	
Shoulder syndrome			<0.05
Positive	6 (30.0%)	0 (0.0%)	
Negative	14 (70.0%)	20 (100.0%)	

MRND, Modified radical neck dissection; SND, Selective neck dissection; SD, Standard Deviation

DISCUSSION

The patients with PTC have a relatively excellent prognosis with a 10-year overall survival rate exceeding 90%. However, cervical lymph node metastases are found in 30 to 80% of patients when diagnosed including occult metastases (*Moo et al., 2010*). Cervical LNM in PTC has been found to be one of the most significant factors for locoregional recurrence, and it also has been regarded as the first sign of a potentially lethal outcome (*Grant, 2015*). Therefore, an

effective therapeutic lateral neck dissection is critical. However, overly aggressive operations such as blindly enlarging the extent of lateral neck dissection may lead to clinically important postoperative morbidities because of injury to the spinal accessory nerve or the cervical plexus, despite gross preservation of these nerves (*Zhang et al., 2013*). There are various options in the extent of therapeutic lateral neck dissection in PTC. Whether or not level V should be included in the lateral neck dissection when it is clinically free continues to be debated

(*Elteley and Terris, 2019*). Therefore, we designed the current study to determine whether routine level V dissection should be included in MRND for clinically suspicious N1b PTC patients. Skip metastases were found in 3 cases (7.5 %) patients, a finding that is consistent with results from *Park et al. (2012)*. In contrast to our study, *Xiang et al. (2015)* reported that the rate reached up to 25%. Of 40 patients, pathology of PTCs were 33 (82.5%) conventional PTC, 3 (7.5%) follicular variant, 2 (5.0%) diffuse sclerosing and 1(2.5%) tall cell variant in agreement with *kim et al. (2017)*. We also observed simultaneous multi-level metastasis in 30 cases (75%). Previous studies regarding lateral LN metastasis patterns have reported an incidence of multi-level lateral LN metastasis in N1b PTC patients that exceeds 80 % (*King et al., 2011*). In MRND group, Level III lateral neck nodes were involved in 16 cases (80.0%). However level IV and level II were involved in 15 cases (75.0 %) and 11cases (55.0%) respectively. In SND group, Level III metastases were evident in 17 cases (85.0%) while level IV and II were evident in 13 (65.5%) and 12 (60.2) cases respectively. A meta-analysis also reported that lateral LN metastasis predominantly involves levels III and IV (*Eskander et al., 2013*). *Wang et al. (2019)* reported the overall rates of LNM in levels II, III, IV and V were 50.8%, 63.9%, 72.8% and 21.3%, respectively. Level IV was the most frequently involved region, followed by levels III and II. In contrast to our study, *Merdad et al. (2012)* reported 49% and 29% involvement of levels II and V, respectively, in a large series of patients undergoing therapeutic lateral neck

dissection. Occult metastatic LNs in level V were detected in one case (5.0%) in 20 patients whom underwent MRND. *Khafif et al. (2013)* reported that the incidence of overall level V metastasis was 13.9 % and that of occult level V metastasis was only 8.6 % in this study. Moreover, only 7.7 % level V recurrences were observed among the recurred N1b PTC patients who underwent unilateral MRND. In contrast to our study, level V showed high incidence of nodal metastasis of approximately up to 53% reported by *Yüce et al. (2010)*. The incidence of lateral neck recurrence in 20 patients who underwent MRND in our study was 1 (5.0 %) and it was ipsilateral and occurred in level III in agreement with *Xu et al. (2017)*. However, we note that a higher incidence of recurrence after MRND has been seen by *Javid et al. (2016)*. Shoulder syndrome defined as chronic painful and limited shoulder movement, was significantly more frequent in N1b PTC patients who underwent routine level V dissection than whom did not perform level V dissection (30.0 % vs. 0.0 %, $p = 0.0202$). As shown in many studies, level V dissection, which involves clearance of the posterior triangle, has the potential to increase the risk of spinal accessory nerve injury, despite gross preservation (*Gane et al., 2019*). Injury to the spinal accessory nerve can lead to a dropped shoulder and the inability to raise the arm above 90 degrees. Furthermore, spinal accessory nerve-associated morbidity has a negative impact on patients' social activities, decreasing their ability to participate in daily and leisure activities and also having a negative impact on work ability (*Gane et al., 2017*). *Robinson et al. (2018)* suggest that temporary or permanent

spinal accessory nerve injury can be caused by dissection and retraction in up to 20% of dissections. The MRND group exhibited a significantly longer operation time (221.25 min vs. 172.35 min, $p < 0.00001$) compared with the SND group in agreement with *Kim et al. (2017)* as level V dissection need more time during MRND. In our study, the amount of drainage was significantly more in the MRND group compared with the SND group (321ml vs. 271.5 ml, $p = 0.033986$) in agreement with *Tamplen et al. (2017)*. While, *kim et al. (2017)* reported that there was no difference in the two groups according to the amount of drainage. In our study, Time of drain removal was significantly less in the SND group compared to MRND group (3.95 days vs. 4.65 days, $p=0.016358$) in agreement with *Tamplen et al. (2017)*. In contrast to our study, *Panda et al. (2015)* reported that there was no difference in the two groups according to time of drain removal. Chyle leak from iatrogenic thoracic duct injury is a rare but serious complication of head and neck surgery that occurs in 0.5–1.4% of thyroidectomies and 2–8% of neck dissections (*Rammal et al., 2014*). Chyle leak was more frequent in the MRND group compared with the SND group but not statistically significant (10% vs. 0.0 %, $p = 0.2308$) in agreement with *McNamara et al. (2016)*. Transient hypocalcaemia occurred in 13 cases (32.5%) in agreement with *Giordano et al. (2012)*. Permrnant hypocalcaemia occurred in 3 cases (7.5%) in agreement with *kim et al. (2017)*. In contrast, *Ardito et al. (2016)* observed that hypocalcemia was also highest in patients who underwent combined central and lateral ND combined with total thyroidectomy

(46.2%). Possible explanation of hypoparathyroidism occurs after performing lateral ND is that the nodal clearance between the internal jugular vein and the carotid artery may disturb the inferior thyroid artery at its origin, thereby interrupting its blood supply. The parathyroid vessels are tiny and terminal, and being preserved in the dissected area, respond to the injury by disrupting blood supply to the glands, prolonging the ischemic damage, with significant parathyroid morbidity (*Ardito et al., 2016*). In our study there were no cases of permanent RLN palsy, nerve injury (Horner syndrome, Vagus nerve and Brachial plexus) and intra or pot operative bleeding. Wound infection occurred in 3 cases in both groups (7.5%). *McMullen et al. (2017)* reported also 3 cases (4.8 %), those cases required treatment with antibiotics and close monitoring.

CONCLUSION

In clinically suspicious N1b PTC patients, levels II, III, and IV may be comprehensively dissected. However, because of the low incidence of metastasis and recurrence in level V and the clear evidence of increased morbidities from level V dissection, level V dissection in N1b PTC patients may be reserved for patients clinically and radiologically evident metastasis in level V. However, large prospective phase III trial is recommended to confirm that conclusion.

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دور تشريح المستوى الخامس للغدد الليمفاوية بالرقبة المصنف ايجابيتها 1 ب في حالات السرطان الحليمي للغدة الدرقية

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خلفيه البحث: بالنسبة للمرضى المصابين بالسرطان الحليمي للغدة الدرقية المصنف ايجابيتها 1 ب يوصى عمومًا بالتشريح الجذري للغدد الليمفاوية بالرقبة من المستوي الثاني إلى الخامس. ومع ذلك، فإن التشريح الروتيني للمستوى الخامس مثير للجدل بسبب انخفاض نسبة حدوث انبثاثات او ارتجاع الورم السرطاني في هذا المستوى وزيادة المضاعفات السريرية المصاحبة لتشريحه.

الهدف من البحث: تم تصميم هذه الدراسة لتحديد المخاطر والفوائد السريرية للتشريح الروتيني للمستوى الخامس للغدد الليمفاوية بالرقبة للمرضى المصابين بالسرطان الحليمي للغدة الدرقية المصنف ايجابيتها 1 ب مع عدم وجود انبثاثات في هذا المستوى.

المرضى وطرق البحث: تضم هذه الدراسة 40 مريض يعانون من السرطان الحليمي للغدة الدرقية القابل للعلاج بالتدخل الجراحي ويتم حجزهم بقسم جراحة الاورام بمستشفى باب الشعرية الجامعي في الفترة من 1 سبتمبر 2017 حتى 1 سبتمبر 2019. و تم تقسيم هؤلاء المرضى الى مجموعتين: المجموعة الأولى: وتضم 20 مريضا سوف يتم عمل جراحة استئصال كامل للغدة الدرقية وتشريح للغدد الليمفاوية المركزية وتشريح للغدد الليمفاوية الجانبية (من المستوى الثاني حتى الخامس) والمجموعة الثانية: وتضم 20 مريضا سوف يتم عمل عمل جراحة استئصال كامل للغدة الدرقية وتشريح للغدد الليمفاوية المركزية وتشريح للغدد الليمفاوية الجانبية (من المستوى الثاني حتى الرابع).

النتائج:

1- يوجد فرق واضح بين المجموعتين فيما يخص الوقت الذى تم فيه إجراء العملية حيث أدى عدم تشريح المستوى الخامس للغدد الليمفاوية الى اختصار وقت العملية.

2- يوجد فرق واضح بين المجموعتين فيما يخص كميته السائل المتجمع فى الدرنقه بعد العملية الجراحية حيث أدى عدم تشريح المستوى الخامس للغدد الليمفاوية الى تقليل هذه الكمية.

3- يوجد فرق واضح بين المجموعتين فيما يخص الوقت المتطلب لازاله الدرنقة بعد العملية الجراحية حيث أدى عدم تشريح المستوى الخامس للغدد الليمفاوية الى تقليل هذه المدة.

4- يوجد فرق واضح بين المجموعتين من حيث نسبه حدوث تسرب السائل الليمفاوى بعد اجراء العملية الجراحية حيث أدى عدم تشريح المستوى الخامس للغدد الليمفاوية الى تقليل هذه النسبة.

5- يوجد فرق واضح بين المجموعتين من حدوث الام وضعف فى عضلات الكتف حيث أدى عدم تشريح المستوى الخامس للغدد الليمفاوية الى تقليل هذه الظاهرة.

6- لا يوجد فرق واضح بين المجموعتين فيما يخص الوقت المتطلب للمكوث بالمستشفى بعد اجراء العمليه الجراحية و فيما يخص نسبه ارتجاع الورم فى العقد الليمفاوية.

الإستنتاج: يمكن عدم عمل تشريح للعقد الليمفاوية بالمستوى الخامس بالرقبة في حالات السرطان الحليمي للغدة الدرقية المثبت عدم اصابتهم بأنبثاثات.