

# Complications in Completion Thyroidectomy after Unilateral Thyroid Lobectomy and Isthmusectomy

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## ABSTRACT

**Objective:** The aim of this study is to determine the complications in completion thyroidectomy after unilateral thyroid lobectomy and isthmusectomy.

**Study Design:** Cross-sectional/Descriptive study

**Place and Duration:** Study was conducted at the department of Surgery Lady Reading Hospital, Peshawar for one year duration from January 2019 to December 2019.

**Methods:** Total seventy patients of both genders were presented in this study. Patients were aged between 15-70 years of age. Patients detailed demographics age, sex and body mass index were recorded after taking informed written consent. Patients serum calcium level was calculated before surgery and first post-operative day. Complications were measured among patients who underwent complete thyroidectomy after unilateral thyroid lobectomy and isthmusectomy. Complete data was analyzed by SPSS 24.0 version.

**Results:** Total 40 (57.14%) were females and 30 (43.86%) were males. Mean age of the patients was  $40.15 \pm 6.84$  years with mean BMI  $25.2 \pm 2.48$  kg/m<sup>2</sup>. Frequency of transient hypocalcemia was 7 (10%), 3 (4.3%) patients had seroma, transient hoarseness of voice was observed among 2 (2.86%) and frequency of neck hematoma was 2 (2.86%). Frequency of wound infection and permanent hypoparathyroidism /hypocalcemia among patients was 0.

**Conclusion:** We concluded in this study that the complications (transient hypocalcemia, seroma, hematoma and transient hoarseness of voice) with no wound infection and permanent hypoparathyroidism /hypocalcemia was observed among patients. Completion thyroidectomy was safe and reliable treatment.

**Keywords:** Completion Thyroidectomy, Thyroid lobectomy, thyroidectomy

## INTRODUCTION

Complete thyroidectomy should be provided to those patients who had been diagnosed before initial surgery for a near-complete or total thyroidectomy recommended. This includes all thyroid patients with unifocals, intrathyroidal, node negative, low risk tumors, except for those with small (<1cm) thyroid cancer. If the lymph nodes are clinically involved, therapeutic lymphatic central neck dissection should be included [1]. An alternative to completion of thyroidectomy was to use ablation of the residual lobe using radioactive iodine. Whether this method produces similar long-term effects is uncertain. Routine ablation of radioactive iodine is also not indicated instead of thyroidectomy.

Thyroidectomy can require a complete thyroidism if an indeterminate or non-diagnostic biopsy is made to diagnose malignancy following lobectomy[1]. A frozen sectional examination of a thyroid lesion, perceived as benign follicular adenoma, is the most common sign for the thyroid completion. The following final pathology report identifies invasive areas and changes the diagnosis to follicular carcinoma. In general, therefore, frozen section in cases where its precision is poor and the result is sometimes misleading is not indicated. The need for a thyroidectomy to be completed after unilateral thyroidectomy was used in 20-30% of the time during the 80s for indeterminate follicular lesion. However, the compulsory world-wide iodine prophylaxis leads to a

significant drop in the incidence of follicular thyroid cancer in all follicular thyroid tumors and recently, grossly invasive follicular cancer, accounting for no more than five to ten percent of follicular lesions. A number of malignant patients may need thyroidectomy complete for the purposes of providing full multiple-center disease resection[2] and RAI treatment. Incidental thyroid cancers in 3%-16.6% of apparently benign goiters have been found in various studies[3-5]. Whilst the majority of adult thyroid disease cancers identified are micropapillary or micro-invasive cancer of the follicles, roughly one-third are follicular and multicentric or large papillary cancers. Such patients need further surgical care, whereas complete thyroidectomy can be regarded as an appropriate operation. Many data are supported by these findings, given that a substantially larger number of patients need cancer neck revision after subtotal versus complete thyroidectomy[4-6].

Theodor Kocher of Bern, Germany's genius and surgical ability lifted thyroid surgery to the science level, placed operative abilities at the pinnacle of surgical art and personally took him to the Nobel Prize in 1909. His excellent work in this respect has contributed to a death reduction from 50% to less than 4.5%. [7,8] [7,8] Result and complication rates depend primarily on the competence and expertise of the surgeon, the scope of the operation and the indication of the operation and the amount of thyroid operations conducted in this specific facility. Tens of thousands of people experience thyroid

cancer every year. [9] [9] [9] Surgery is normal and has well reported complications in treating benign and malignant thyroid diseases. Recurring laryngeal neuronal damage (RLN) and hypoparathyroidism are of particular concern among the major operational threats. [10,11] [10,11] The rates of complications of benign thyroid disease after surgery differ in the literature but are usually low, ranging from 0% to 1.8%. [12] Complication rates of permanent thyroid surgery range from 3% to 14% are known to increase the risk of complications. [10,11,13] [10,11,13] This is probably because of increased fibrosis and structural complexity.

## MATERIAL AND METHODS

This Cross-sectional/Descriptive study was conducted at the department of Surgery Lady Reading Hospital, Peshawar for one year duration from January 2019 to December 2019 and the sample comprised of seventy patients. Patients detailed demographics including age, sex and body mass index were recorded after taking informed written consent. Patients who had anaplastic, medullary, and thyroid lymphoma were excluded from this study.

Patients were aged between 15-70 years of age. Patients serum calcium level was calculated before surgery and first post-operative day. Complications were measured among patients who underwent completion thyroidectomy after unilateral thyroid lobectomy and isthmusectomy.

## RESULTS

Total 40 (57.14%) were females and 30 (43.86%) were males. Mean age of the patients were  $40.15 \pm 6.84$  years with mean BMI  $25.2 \pm 2.48$  kg/m<sup>2</sup>. Out of 70 patients, frequency of papillary cancer was 57 (81.43%), hurthle cell carcinoma was among 5 (7.14%) and follicular cancer was among 8 (11.43%). 37 (52.9%) had malignancy in contralateral lobe. (table 1)

Table 1: Details demographics of enrolled cases

Variables	Frequency	%age
Gender		
Male	40	57.14
Female	30	43.86
Mean age	$40.15 \pm 6.84$	
Mean BMI	$25.2 \pm 2.48$	
Types of Cancer		
Papillary cancer	57	81.43
hurthle cell carcinoma	5	7.14
follicular cancer	8	11.43
Malignancy in contralateral lobe		
Yes	37	52.9
No	33	47.1

Table 2: Frequency of complication among patients in completion thyroidectomy

Variables	Frequency	%age
Complications		
Hematoma	2	2.86
Seroma	3	4.3
Transient hypocalcemia	7	10
Wound infection	0	0
Permanent hypoparathyroidism /hypocalcemia	0	0

Frequency of transient hypocalcemia was 7 (10%), 3 (4.3%) patients had seroma, transient hoarseness of voice was observed among 2 (2.86%) and frequency of neck hematoma was 2 (2.86%). Frequency of wound infection and permanent hypoparathyroidism /hypocalcemia among patients was 0. (table 2)

## DISCUSSION

Completion thyroid is characterized as either a lobectomy, subtotal thyroidectomy or near complete thyroid tissues removal after initial thyroid surgery as a result of malignancy in the histopathology study. The full removal of the thyroid gland has a number of benefits. First, the diagnosis and removal of chronic and metastatic disease with radioactive iodine is facilitated. [14]

In present study seventy patients were included. Patients were aged between 15-70 years. Mean age of the patients were  $40.15 \pm 6.84$  years with mean BMI  $25.2 \pm 2.48$  kg/m<sup>2</sup>. Out of 70 patients, frequency of papillary cancer was 57 (81.43%), hurthle cell carcinoma was among 5 (7.14%) and follicular cancer was among 8 (11.43%). 37 (52.9%) had malignancy in contralateral lobe. These findings were comparable to the some previous studies. [15-17] Frequency of transient hypocalcemia was 7 (10%), 3 (4.3%) patients had seroma, transient hoarseness of voice was observed among 2 (2.86%) and frequency of neck hematoma was 2 (2.86%). Frequency of wound infection and permanent hypoparathyroidism /hypocalcemia among patients was 0. After complete thyroidectomy, hypocalcaemia is the most common complication. In 16.67% of thyroidists after thyroidomy completion, a study showed that intermittent hypoparathyroidism occurred at approximately 24.5%, with persistent and symptomatic hypocalcemia. [19] Other studies showed a decline in trends, which are stated respectively as 20% and 5.8%. [20] In a recent Korean study, 9.4% and 3.1% prevalence of transient hypoparathyroidism respectively was also noted for a similar pattern. [21] The RLN injury rate was estimated at 0.5–5% after thyroid operation. [22] The report is not available. In the literature the occurrence of seroma was 1.7 percent to 7 percent after thyroid surgery. [23,24] Seroma formation is linked to injury inflammation, flap necrosis, and local swelling that can lead to longer hospitalizations.

With the latest information, complete thyroidectomy can be concluded if the primary tumor has a diameter or higher than 1.0cm, additional thyroid extension of the tumor or metastasis. It is also the choice in all thyroid patients due to sensitivity to ionizing head and neck radiation. [25] However, total thyroidectomy involves the services of a thyroid surgeon with expertise in order to avoid complications. If an experienced thyroid surgeon is not present, it is preferable to refer the patient elsewhere, or to have almost complete treatment thyroidism. Unilateral lobectomy and Isthmusectomy is acceptable if the tumor is smaller than 1.0cm diameter and is limited to one lobe in the gland as 30 years of survival are near 100%. [26]

Building on the papillary thyroid carcinoma, the dissection of the neck is part of the surgical care. The function of prophylactic neck dissection remains controversial for well-differentiated thyroid cancer.

However, the surgical neck dissection of patients with papillary thyroid cancer with visible nodes is widely recognized. [27,28]

## CONCLUSION

We concluded in this study that the complications (transient hypocalcemia, seroma, hematoma and transient hoarseness of voice) with no wound infection and permanent hypoparathyroidism /hypocalcemia were observed among patients. Completion thyroidectomy was safe and reliable treatment.

## REFERENCE

1. American Thyroid Association (ATA) Guidelines Taskforce on Thyroid Nodules and Differentiated Thyroid Cancer, Cooper DS, Doherty GM, Haugen BR, Kloos RT, et al. (2009) Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. *Thyroid* 19: 1167-1214.
2. Pacini F, Elisei R, Capezzone M, Miccoli P, Molinaro E, et al. (2001) Contralateral papillary thyroid cancer is frequent at completion thyroidectomy with no difference in low- and high-risk patients. *Thyroid* 11: 877-881.
3. Giles Y, Boztepe H, Terzioğlu T, Tezelman S (2004) The advantage of total thyroidectomy to avoid reoperation for incidental thyroid cancer in multinodular goiter. *Arch Surg* 139: 179-182.
4. Tezelman S, Borucu I, Senyurek Giles Y, Tunca F, Terzioğlu T (2009) The change in surgical practice from subtotal to near-total or total thyroidectomy in the treatment of patients with benign multinodular goiter. *World J Surg* 33: 400-405.
5. Barczyński M, Konturek A, Hubalewska-Dydejczyk A, Golkowski F, Cichon S, et al. (2010) Five-year follow-up of a randomized clinical trial of total thyroidectomy versus Dunhill operation versus bilateral subtotal thyroidectomy for multinodular nontoxic goiter. *World J Surg* 34: 1203-1213.
6. Barczyński M, Konturek A, Stopa M, Cichon S, Richter P, et al. (2011) Total thyroidectomy for benign thyroid disease: is it really worthwhile? *Ann Surg* 254: 724-729.
7. Robertson ML, Steward DL, Gluckman JL, Welge J. Continuous laryngeal nerve integrity monitoring during thyroidectomy: Does it reduce risk of injury? *Otolaryngol Head Neck Surg* 2004;131:596-600.
8. Rosato L, Avenia N, Bernante P, DePalma M, Gulino G, Nasi PG, et al. Complications of thyroid Surgery: analysis of a multicentric study on 14,934 patients operated in Italy over five years. *World J Surg* 2004;28:271-6.
9. American Cancer Society: Cancer Facts and Figures 2006. Atlanta, GA, American Cancer Society, 2006
10. Roßner HD, Goretzki PE, Hellmann P, Witte J: Complications in thyroid surgery: incidence and therapy. *Chirurgie* 1999; 70: 999-1010.
11. Osmański A, Frenkiel Z, Osmański R: Complications in surgical treatment of thyroid diseases. *Otolaryngol Pol* 2006; 60: 165-70.
12. Dener C: Complication rates after operations for benign thyroid disease. *Acta Otolaryngol* 2002; 122: 679-83.
13. Herranz-Gonzalez J, Gavilan J, Matinez-Vidal J, Gavilan C: Complications following thyroid surgery. *Arch Otolaryngol Head Neck Surg* 1991; 117: 516-8.
14. Kluijfhout WP, Rotstein LE, Pasternak JD. Well-differentiated thyroid cancer: Thyroidectomy or lobectomy? *Canadian Med Assoc J*. 2016;188:E517-E20.
15. Mehmood Z, Razzak SA, Baloch MN, Shahid H, Buledi RK, Javed A. Complications following completion thyroidectomy. *J Surg Pakistan*. 2019;24(2):67-70. Doi:10.21699/jsp.24.2.4.
16. Rahman GA. Extent of surgery for differentiated thyroid cancer: recommended guideline. *Oman Med J*. 2011;26(1):56-58. doi:10.5001/omj.2011.15
17. Efremidou EI, Papageorgiou MS, Liratzopoulos N, Manolas KJ. The efficacy and safety of total thyroidectomy in the management of benign thyroid disease: a review of 932 cases. *Can J Surg*. 2009;52(1):39-44.
18. Cmilansky P, Mrozova L. Hypocalcemia - the most common complication after total thyroidectomy. *Bratisl Lek Listy*. 2014;115:175-8
19. Kranthikumar G, Syed N, Nemade H, Pawar S, Chandra Sekhara Rao LM, Subramanyeshwar Rao T. Safety of completion thyroidectomy for initially misdiagnosed thyroid carcinoma. *Rambam Maimonides Med J*. 2016;7: e0022.
20. Gulcelik MA, Dogan L, Akgul GG, Guven EH, Ersoz Gulcelik N. Completion thyroidectomy: Safer than thought. *Oncol Res Treatment*. 2018;41:386-90. doi: 10.1159/000487083.
21. Park YM, Kim JR, Oh KH, Cho JG, Baek SK, Kwon SY, et al. Comparison of functional outcomes after total thyroidectomy and completion thyroidectomy: Hypoparathyroidism and postoperative complications. *Auris Nasus Larynx* 2019;46:101-5 doi: 10.1016/j.anl.2018.03.009.
22. Tresallet C, Chigot JP, Menegaux F. [How to prevent recurrent nerve palsy during thyroid surgery?]. *Ann Chir*. 2006;131:149-53.
23. Ramouz A, Rasihashemi SZ, Daghigh F, Faraji E, Rouhani S. Predisposing factors for seroma formation in patients undergoing thyroidectomy: Cross-sectional study. *Ann Med Surg*. 2017;23:8-12.
24. Sheahan P, O'Connor A, Murphy MS. Comparison of incidence of postoperative seroma between flapless and conventional techniques for thyroidectomy: a case-control study. *Clin Otolaryngol*. 2012;37:130-5.
25. Fogelfeld L, Wiviott MB, Shore-Freedman E, Blend M, Bekerman C, Pinsky S, et al. Recurrence of thyroid nodules after surgical removal in patients irradiated in childhood for benign conditions. *N Engl J Med* 1989. Mar;320(13):835-840 10.
26. Mazzaferri EL, Jhiang SM. Long-term impact of initial surgical and medical therapy on papillary and follicular thyroid cancer. *Am J Med* 1994. Nov;97(5):418-428 10.
27. Cooper DS, Doherty GM, Haugen BR, Kloos RT, Lee SL, Mandel SJ, et al. American Thyroid Association (ATA) Guidelines Taskforce on Thyroid Nodules and Differentiated Thyroid Cancer Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. *Thyroid* 2009. Nov;19(11):1167-1214 10.1089/thy.2009.
28. Soh EY, Clark OH. Surgical considerations and approach to thyroid cancer. *Endocrinol Metab Clin North Am* 1996. Mar;25(1):115-139 10.