Original Article

Total Versus Subtotal Thyroidectomy

Total Versus Subtotal Thyroidectomy for the Management of Benign Multinodular Goiter at DHQ Teaching Hospital Gujranwala

Mudassir Rasool, Liaqat Ali Zia, Muhammad Khalid, Imran Amin, Muhammad Ansar Aslam and Hafiz Muhammad Khizar Nawaz Cheema

ABSTRACT

Objective: Goiter is an indicator of constant iodine inadequacy is a significant general health issue for populace living with iodine insufficient climate. The aim of this metanalysis is to asses and validates the feasibility and safety of total thyroidectomy (TT) when compared to subtotal thyroidectomy for benign multinodular goiter.

Study Design: Retrospective Study

Place and Duration of Study: This study was conducted at department of General Surgery DHQ-Teaching Hospital Gujranwala (Pakistan) from January 2013 and July 2018.

Materials and Methods: A total of 409 patients who underwent thyroidectomy for benign multinodular goiter. The study protocol was endorsed by the morals advisory group before the beginning of the investigation.

Results: There were 409 thyroidectomy cases of which 258 (63%) and 151 (37%) underwent total thyroidectomy and subtotal thyroidectomy, respectively. The signs for medical procedures were kind multinodular goiter. The mean age was 41.5 ± 12.7 years for all patients, 42.2± 12.4 years in complete thyroidectomy gathering and 40.3± 12.4 years in subtotal thyroidectomy gathering. The most youthful patient was 17, and the most seasoned was 80 years.

Conclusion: Our study showed that there is no significant difference with respect to early stage postoperative complications between TT and STT. However, TT has the benefit of staying away from the danger of decline repeat, reoperation and dispenses with any ensuing danger of dangerous in thyroid organs.

Key Words: Subtotal, Thyroidectomy, Multinodular Goiter

Citation of article: Rasool M, Zia LA, Khalid M, Amin I, Aslam MA, Cheema HMKN. Total Versus Subtotal Thyroidectomy for the Management of Benign Multinodular Goiter at DHQ Teaching Hospital Gujranwala. Med Forum 2020;31(11): 167-170.

INTRODUCTION

Goiter is an indicator of constant iodine inadequacy is a significant general health issue for populace living with iodine insufficient climate. The pervasiveness of goiter was accounted for by (WHO) world health association it assessed 20-60% of total populace. Pakistan is the one of most seriously iodine lacking nations on the planet. Multinodular goiter is far and wide one instance of iodine lack.

In any case, treatment of multinodular goiter is as yet being discussed. Already subtotal thyroidectomy is a treatment of decision of amiable multinodular goiter[1].

Department of General Surgery, DHQ-Teaching Hospital Gujranwala.

Correspondence: Prof Dr. Liaqat Ali Zia, Professor of General Surgery DHQ Teaching Hospital Gujranwala.
Contact No: 0301-8742901
Email: liaqataliz@yahoo.com

Received: April, 2020
Accepted: August, 2020
Printed: November, 2020

Yet, as of late, thyroid medical procedure for considerate ailment and the effect of careful convention on the patient and specialist, explicit danger factors for explicit difficulty rates. Thyroid organ resection mean to eliminate all nodular tissue while leaves a little leftover in situ to save thyroid capacity[2]. There by forestalling long lasting thyroid hormone supplementation treatment. Anyway there is hazard that the illness will persevere or reoccur in the leftover tissue. 40% of patient with multinodular goiter have knobs confined in the dorsal aspect of the organ, which are typically left during ordinary subtotal resection most focuses have received all out a close to add up to thyroidectomy and revealed low horribleness rates like the subtotal procedure albeit absolute thyroidectomy procedure of decision for the executives of thyroid malignant growth in view of increment endurance pace of patients. The ideal careful methodology for kind multinodular goiter has stay dubious[3]. The name purpose behind playing out a subtotal thyroidectomy is apparently low occurrence of post usable difficulty including intermittent laryngeal nerve loss of motion and hyperparathyroidism. Post – employable euthyroid state keep up by leaving a little leftover of thyroid tissue in site to keep up sufficient hormone creation[4].

There is, anyway a danger that the illness continues or reoccur in the remainder. Latest examinations supported all out thyroidectomy as favored procedure in careful administration of generous multinodular goiter in light of the fact that the lingering after subtotal thyroidectomy was bad recently accepted and intricacy hang tight for not diverse among aggregate and subtotal thyroidectomy procedure[5].

The aim of this meta-analysis study is to assess the feasibility and safety of total thyroidectomy (TT) when compared to subtotal thyroidectomy for benign multinodular goiter.

MATERIALS AND METHODS

A total of 409 patients who underwent thyroidectomy for benign multinodular goiter between January 2013 and July 2018 at the department of General Surgery DHQ-Teaching Hospital Gujranwala (Pakistan) were reviewed retrospectively. The segment properties of patients, the signs for medical procedure, post operatively beginning phase dreariness (transient and perpetual intermittent laryngeal nerve paralysis, transient relentless hypocalcaemia, post usable draining and wound site contamination) and length of remain in clinic were assessed. Thyroid test and other pathology tests were taken in the lab. The patients found to have hyperthyroidism before activity were treated with antithyroid medications (propylthiouracil and methimazole) until they became euthyroid and were then worked on. Patients who went through one-sided lobectomy, finish thyroidectomy, thyroidectomy because of Baredow Grave's malady, thyroiditis and thyroid malignancy were excluded from the examination. The chose patients were isolated into two gatherings in particular the all-out thyroidectomy and subtotal thyroidectomy gatherings. All patients in the two gatherings were worked on by some accomplished specialist. Exertion was made to see the parathyroid organ during all tasks. For the cases where the parathyroid organs were not noticeable, the organs ere looked for at conceivable ectopic locales. Those parathyroid organs whose blood perfusion was wrecked were cut into 1 mm 3 pieces and afterward relocated into the ipsilateral sternocleidomastoid muscle. In all out thyroidectomy bunch the repetitive laryngeal nerve was seen during medical procedure and was saved. During the subsequent period, those whose vocal line developments discovered to be ordinary were viewed as having transient RLN paralysis, when vocal string paralysis over a half year, it was viewed as steady RLN paralysis.

Serum Calcium levels: Serum Ca level were resolved preoperatively in all patients and on the principal postoperative day. Ca++ levels were re-decided on the ensuing postoperative days as vital. Patients with hypocalcemia indications were treated with Vit D and calcium substitution. Patients with hypercalcemia indications enduring over a half year were acknowledged as having tenacious hypoparathyroidism. The data was analyzed by using SPSS version 19. A value of $P < 0.05$ was accepted as statistically significant.

RESULTS

There were 409 thyroidectomy cases of which 258 (63%) and 151 (37%) underwent total thyroidectomy and subtotal thyroidectomy, respectively. The signs for medical procedures were kind multinodular goiter. The mean age was 41.5 ± 12.7 years for all patients, 42.2± 12.4 years in complete thyroidectomy gathering and 40.3± 12.4 years in subtotal thyroidectomy gathering. The most youthful patient was 17, and the most seasoned was 80 years. There were 324 (79.2%) females and 85 (20.8%) guys. Among benevolent multi nodular goiter 258 (63.0%) were in the complete thyroidectomy (TT) and 151(37.1%) were in subtotal thyroidectomy (STT). Of the 258 patients in TT gathering, 195 (75.6%) were given euthyroidism while 43(28.5%) were given hyperthyroidism. The mean length of remain in medical clinic was 3.4±2.15 days in TT gathering and 3.6± 2.12 days in the STT gathering. There was no huge contrast between the two groups regarding age, sex, hormonal status, term of remain in medical clinic and sign of medical procedure (table 1).

Table 1: Comparison of TT and STT group

Patient properties	Groups		P-values
	TT (n=258)	STT (n=151)	
Males (%)	53(20.5%)	32(21.2%)	0.081
Females (%)	205(79.5%)	119(78.8%)	0.903
Benign multi nodular goiter	258(63.0%)	151(37.1%)	0.521
Length of stay in hospital (days)	3.4±2.15	3.6± 2.12	0.111
Hormonal status	3(1.1%)	4(2.6%)	

Hematoma created in three (1.9%) cases while wound site disease created in one (.6%) tolerant in STT gathering. In TT gathering, hematoma created in three (1.1%) cases while wound site disease created in three (1.1%) patients. No measurably contrasts were found between the two gatherings as for the improvement pace of hematoma and wound site contamination ($P > 0.05$) ensuing to the thyroidectomies in the general injury site issues (disease and hematoma) created in 10 (2.4%) cases. RLN paralysis happened in (2.3%) cases in the TT gathering and in 3 (1.9%) cases in the SST gathering. All RNL paralysis cases were one-sided. Perpetual paralysis was not reported in either gathering and there was no measurable contrast between the gatherings as for RNL paralysis ($p > 0.05$). In the postoperative period, hypocalcaemia created in 40

(15.5%) cases in the TT gathering and in 27 (17.8%) patients in the STT gathering. Though no tireless hypocalcaemia was seen in the STT gathering, it was seen in 1 (.4%) cases in the TT bunch as for hypocalcaemia happened in 67 (16%) patients. No different difficulties were noted in either gathering. The cost usable difficulties pace of the gatherings are appeared in table 2.

Table No.2: Post-operative complications rates of the patients

Complications	Groups		P - value
	TT n (%)	STT n (%)	
Hematoma	3 (1.1%)	3 (1.9%)	0.514
Wound site infection	3 (1.1%)	1 (0.6%)	0.611
Hypocalcaemia Transient permanent	40 (15.5%) ---	27 (17.8%) ---	0.571
RLN palsy Transient Permanent	6 (2.3%) ---	3 (1.9%) ---	0.805

DISCUSSION

As a result of its high complexities rates, this procedure was once in a while utilized in non-malignant cases. High repeat rates, in spite of hormonal concealment treatment after subtotal thyroidectomy for amiable thyroid infection, expanded the enthusiasm for all out resection. As of late TT has gotten more worthy in the treatment of generous multi nodular goiter[6].

40% of the knobs are situated close to the back case of the thyroid organ in kind multi nodular goiter, so a few knobs remain unresected in STT. The best impediment of STT in favorable multi nodular goiter is the high repeat rate. 14.5% repeat rate in patients who got clinical treatment after STT and 43% in patients to do[7]. 42% repeat rate in a long term follow up of STT patients. Repeat in thyroid ailment by the by acts troubles for reoperation like stringy tissues lead to lose of ordinary anatomic structure, which thusly, prompts extremely high entanglement rates. Reoperations because of repeat have a 10 crease expanded in RLN and parathyroid organ wounds[8]. Wound disease and draining rates Recurrent laryngeal nerve palsy (RLNP) rate was 1.9% and there were no permanent paralysis cases after subtotal thyroidectomy was performed. We discovered no factually critical distinction regarding the paces of transient and permanent RLN Palsy between Total Thyroidectomy (TT) and Subtotal Throidectomy (STT)[9].

The reason for transient hypocalcemia may incorporate parathyroid organ ischemia, postoperative hemodilution and thyroid organ control prompting expanded calcitonin secretions. Persitant hypocalcemia result from an inadvertent expulsion of the parathyroid organs alongside the thyroid organ or from the disturbance of blood perfusion of the parathyroid organ[10-11].

We discovered the paces of transient hypocalcemia to be 1.5% and that of persevering hypocalcemia to be 0.4% after TT. Also, the transient hypocalcemia rates was17.5% and that of constant hypocalcemia rate was 0% after STT. No significant measurably contrasts were seen regarding transient and steady hypocalcemia between the TT and STT gatherings. As indicated by the new literature, the recurrence of postoperative drain and wound disease runs somewhere in the range of 0% and 2%. Some examinations say, the discharge rate was 0.4% after TT and 0% after STT. Wound disease rate are likewise higher in portrayals[12].

Another significant factor prompting abstination from the subtotal mediation of favorable multinodular goiter (MNG) is the threat possible the thyroid knobs. The mysterious disease rate is by and large somewhere in the range of 7% and 10%. The 5% of all thyroid knobs have harmful characteristics. Moreover, the most well-known purpose behind complexity in thyroid medical procedure is the coincidental finding of danger in obsessive assessments. Hoarsness because of RLN paralysis, hypocalcemia because of parathyroid organ injury and beginning phase discharge because of inadequate draining control are the most noteworthy intricacies occurring after thyroidectomy activities[13].

A few investigations have detailed that TT is related with higher danger of complications. However, a few examinations found the entanglement chances related with TT to be lower. However, in numerous different investigations, no noteworthy contrasts were found regarding the paces of confusion between TT and STT. Moreover, our study didn't locate any huge complexities among TT and STT[14].

The current writing shows the permanent RLN paralysis rate after TT goes from 0%-0.7% and STT from 0%-1.3% performed by experienced surgeons[15]. In a similar report, the paces of transient and permanent RLN paralysis were accounted for as 4% and 1% individually after STT. In our investigation the transient RLN paralysis rate was accounted for as 1.9% and there were no permanent RLN paralysis cases after TT was performed. Moreover, the transient was 0% after TT and 0.6% after STT[16].

In our arrangement of cases, no extreme discharge or wound site contamination requiring reoperation was accounted for. The hematoma and wound site contamination rates were both 1.1% after TT. In STT hematoma and wound site contamination occurred at the pace of 1.9% and 0.6% separately. Cut site problems (wound site disease and hematoma) occurred altogether of 10 (2.4%) patients[17]. Patients with wound site contaminations were treated with fitting anti-infection treatment and wound dressing. Those with hematomas were depleted. We found no factually

critical contrasts concerning wound site disease and hematomas between the gatherings.

In the same way as other different investigations, our examination results represented that utilizing TT for kind MNG should be possible with little horribleness[18]. The most significant factor in diminishing dreariness in thyroid medical procedure is the careful method utilized. We accept that during the assembly and dismemberment of the thyroid flaps, uncovering RLN, utilizing successful hemostasis during activity to guarantee clean activity, seeing the four parathyroid organs, and ensuring their perfusion vessels may assist with lessening intricacies[19]

CONCLUSION

It is concluded that there is no significant difference with respect to early stage postoperative complications between TT and STT. However, TT has the benefit of staying away from the danger of decline repeat, reoperation and dispenses with any ensuing danger of dangerous in thyroid organs. TT ought to in this way be considered for treating kindhearted multi nodular goiter.

Author's Contribution:

Concept & Design of Study:	Mudassir Rasool
Drafting:	Liaqat Ali Zia Muhammad Khalid,
Data Analysis:	Imran Ami, Muhammad Ansar Aslam, Hafiz Muhammad Khizar Nawaz Cheema
Revisiting Critically:	Liaqat Ali Zia, Muhammad Khalid
Final Approval of version:	Liaqat Ali Zia

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Hurley DL, Gharib H. Evaluation and management of multinodular goiter. Otolaryngol Clin North Am 1996;29:527-540.
2. Endogan G, Erdogan MF, Delange F, Sav H, Gullu S, Kamel N. Moderate of severe iodine deficiency in three endemic goiter areas from the Black sea region and the capital of Turkey. Eur J Epidemiol 2000;16:1131-4.
3. De Groot LJ. Treatment of multinodular goiter by surgery. J Endocrinol Invest 2001;24: 820-822.
4. Korun N, Asci C, Yilmazlar T, et al. Total thyroidectomy or lobectomy in benign nodular disease of the thyroid: changing trends in surgery. Int Surg 1997;80:417-19.
5. Foster RS Jr. Morbidity and mortality after thyroidectomy. Surg Gynecol Obstet 1978;146: 413-429.
6. Duren M, Yavuz N, Bukey Y et al. Impact of initial surgical treatment on survival of patients with differentiated thyroid cancer: experience of an endocrine surgery center in an iodine-deficient region. World J Surg 2000;24:1290-4.
7. Bistrup C, Nielsen JD, Gregersen G, Franch P. preventive effect of levothyroxine in patients operated for non toxic goiter: a randomized trial of one hundred patients with nine years follow-up. Clin Endocrinol 1994;40: 323-327.
8. Hay ID, Grant CS, Taylor WF, McConahey WM. Ipsilateral lobectomy versus bilateral lobar resection in papillary thyroid carcinoma: a retrospective analysis of surgical outcome using a novel prognostic scoring system. Surg 1987; 102:1088-95.
9. Reeve TS, Delbridge L, Cohen A, Crummer P. Total thyroidectomy. The preferred option for multinodular goiter. Ann Surg 1987;206:782-786.
10. Chao TC, Jeng LB, Lenen JD, Chen MF. Reoperative thyroid surgery. World J Surg 1997; 21:644-7.
11. Liu Q, Djuricin G, Prinz RA. Total thyroidectomy for benign thyroid disease. Surg 1998;123:2-7.
12. Harness JK, Fung L. Thompson NW, Burney Re, Mcleod Mk. Total thyroidectomy: complications and technique. World J Surg 1986:10:781-6.
13. Mishra A, Agarwal A, Agarwal G, Mishra SK. Total thyroidectomy for benign thyroid disorders in an endemic region. World J Surg 2001;25:307-310.
14. Menegaux F, Turpin G, Dahman M et al. secondary thyroidectomy in patients with prior thyroid surgery for benign disease: a study of 203 cases. Surgery 1999;126:476-83.
15. Wheeler MH. Total thyroidectomy for benign thyroid disease. Lancet 1998;351:1526-1527.
16. Greedsen JP, Frolund L. Recurrence of non-toxic goiter with and without thyroxin medication. Clin Endocrinol (Oxf) 1984;21-529-33.
17. Bononi M, De Cesare A, Atella F, Angelini M, Fierro A, Fiori E, et al. Surgical treatment of multinodular goiter: incidence of lesions of the recurrent nerves after total thyroidectomy. Int Surg 2000;85: 190-193.
18. Rojdmark J, Jarhult J.High long-term recurrence rate after subtotal thyroidectomy for nodular goiter. Eur J Surg 1995;161:725-7.
19. Harness JK, Fung, L, Thompson NW, Burney RE, McLeod MK. Total thyroidectomy: complications and technique. World J Surg 1986;10:781-786.