

Does Thyroxin Prevent Goiter Recurrence after Subtotal Thyroidectomy?

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ABSTRACT

Background: One of the most acknowledged problem of thyroid surgery is the reoccurring thyroid enlargement. Many circumstance that affiliated to this botheration detection of these facts may be valuable in avoidance of recurrence of goiter.

Aim To search relativity among indecorous thyroxin intake followed by the procedure of subtotal thyroid surgery and reoccurring thyroid enlargement.

Study pattern: Descriptive analysis by cross sectioning.

Setting: Department of Surgery at Central Park teaching hospital, Lahore

Duration of study: one year and six months (Apr 2016 to Aug, 2017).

Methods: 60 cases of recurrent thyroid enlargement were received. Demographic features were recorded with special stress to age & sex during which the patient got suffered from thyroid enlargement was inquired and history of post-surgery thyroxin intake was also explored. Thyroid scan was done of each patient to locate the area of recurrent thyroid enlargement.

Results: largely the case were of 20–35 years' age (n= 32). The mean age of all the cases included in our research work was 38.45 ± 10.849 years. There were 53 females (88.3%) and 7 males (11.7%) cases. The male to female ratio was 1:7.5. Most of the cases started to grow their thyroid enlargement in 3 – 6 years following primary surgery 38(63.3%). 42 cases never take thyroxine following primary operation and 18 had on and off intake of thyroxine while total patients were sixty (n= 60).

Conclusion: Indecorous thyroxin intake after thyroidectomy and improper techniques for the procedure of primary thyroidectomy are the key reasons that can lead to reappearance of goiter especially in young adults.

Key words: Goiter, Recurrence, Post-Operative thyroxin intake, Thyroxin

INTRODUCTION

The gradual expansion of thyroid gland as compare to its relative normal size is called Goiter and in special pathological problems surgery is the mainstay of treatment. Recurrent goiter is the one that reappears after thyroidectomy and this happens either as a sequel of leaving behind some disease tissue i.e. incomplete surgery or the same disease develops in remaining normal thyroid tissue which has been dealt during the primary surgical procedure.^{1,2}

According to different studies the possibility of recurrent thyroid enlargement after partial thyroidectomy is variable.^{3,4,5,6} It was found that there are multiple risk factors that have impact on recurrence like young age, female gender⁷, numerous nodules^{8, 5, 9}, incomplete surgery¹⁰ and patient's poor attitude toward taking proper thyroxine following surgery on thyroid¹¹. All above factors that are likely to be the cause thyroid regrowth, two of them can be modified that are the incomplete surgery and improper intake of thyroxine.

Depending on the available data and research which is of level II evidence in favor of total or near total thyroid surgery to prevent thyroid to reoccur.^{12,13}. Although there is scattered evidence accessible regarding the role of

Thyroxin use following Subtotal Thyroidectomy¹⁴. In one of the local study it was notice that 75% of patients with reappearance of goiter after subtotal thyroid surgery did not use thyroxin even once and 25% patients took it irregularly for variable time duration¹.

Following operation appropriate use of thyroxin diminishes TSH secretion¹⁵ which in response impedes the process of increase in size of thyroid follicles and hence stop recurrence of thyroid gland after surgery. The purpose of this study is to reveal the connection between poor compliance to thyroxine intake after subtotal thyroidectomy and recurrence of goiter especially in those patients who have goiter.

MATERIAL AND METHODS

This cross sectional study was conducted in Surgical Department, Central Park Medical College, Lahore for a period of 18 months i.e., from April 2016 to August, 2017. Non probability consecutive sampling technique was used. Age 18-60years, both genders presented with recurrent goiter after thyroidectomy for benign thyroid excision were included in the study. While patients of malignant disease (primary or recurrent) were excluded,

Data Collection: All patients admitted in central park medical college and allied hospitals with the diagnosis of recurrent goiter included in the study who fulfil the inclusion criteria. All the patients who participated in our study had formally agreed by signing a consent of approval after being explained the procedure of data collection. Privacy of the patients were maintained. Patient's right and ethical committee of the college approved this study.

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Despite from careful history taken, a special intention is given to the age at first surgery, and the time period in which the patient is free of reoccurrence and history about compliance to the medicine intake with a special attention given to thyroxin to find out the risk factors for reoccurrence. i.e. patient was properly taking thyroxin or was negligent and did the patients, who were taking the medicine properly, inquire about the proper quantity of the drug and time duration of compliance to thyroxin intake.

Clinical examination carried out thoroughly and the required investigations were done. Thyroid function test was done to classify whether the patient is hyperthyroid, euthyroid or hypothyroid. To assess tissue diagnosis of recurrent disease, fine needle aspiration cytology was done and to assess the location of recurrence thyroid scan was done. A predesigned Performa was use to gather these facts. Data was analysed by SPSS version 21. Quantitative variables like age were calculated as mean±SD. Qualitative variables like gender, postop thyroxin intake were calculated as frequency & percentage.

RESULTS

There were 32 (53.3%) patients aged between 20–35years, 21(35%) had aged between 35-50years and 7(11.7%) aged ≥50years. Mean age of patients was 38.45±10.85 years. There were 53(88.3%) female and only 7(11.7%) males. The ratio between female and male was 7.5:1. In this sample, 42(70%) patients had zero compliance to thyroxin that is they have not taken the drug at all after thyroid operation while 18 (30%) took thyroxine on and off and inadequate dose in other words display poor compliance to thyroxin (Table 1). In our study, in 15(25%) patients recurrence occurred within 3 years, in 38(63.3%) patients recurrence occurred within 3-6 years and in 7(11.7%) patients recurrence occurred in ≥6years (Fig 1).

Fig 1: Duration after which patients developed recurrence

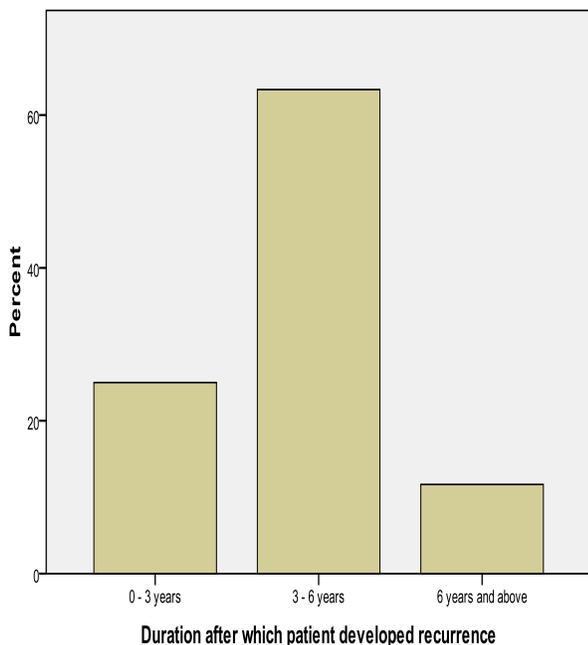


Table 1: Demographics of patients with recurrent goiter

Age	Frequency	Percent
18 to 35 years	32 (53.3%)	53.3
35 to 50 years	21 (35%)	35
>50 years	7 (11.7%)	11.7
Male	7 (11.7%)	11.7
Female	53 (88.3%)	88.3
Post-operative thyroxin intake	0	0%
No	42 (70%)	70.0
Poor compliance with thyroxin	18 (30%)	30.0

DISCUSSION

The problem of goiter recurrence can be dealt without difficulty and this worry some problem needs to be examine methodically regarding its diverse originative factors. There are heterogeneous factors that are seems to be the causative factors in numerous national and international publications as young age, female sex multinodularity¹⁴ poor compliance to postoperative thyroxin intake and insufficient surgery^{5,16}.

These causes that is insufficient surgery and especially poor comply to thyroxin is the hall mark of our study¹⁷. Majority of patient participating in our project with regrowth of goiter after surgery belong to group one that is younger age group i.e. 20-35years (Table 1). Although it is quite evident that many thyroid re-growth occurred during 3-6years postoperatively (Table 4). It showed that a massive number of younger people were present on the occasion of the first operation. Many research workers thought that younger age is the likelihood cause for regrowth of thyroid gland after surgery. In our study, females were more dominant. This finding match with many studies conducted worldwide^{1,4,18}. As the thyroid enlargement is much more common in female that is why female gender dominance is more common.

About 70% of patients have zero compliance to thyroxin post operatively that is did not take drug at all which we observe during our study period and the remaining patients comply poorly mean took thyroxin on and off with inadequate dose as well. Nearly all of our patients with regrowth of goiter have common element for regrowth i.e.; on and off thyroxin intake with inadequate dosage or no intake of Thyroxin following surgery. However according to some studies about forty-seven percent of regrowth of thyroid was noticed in patients who took inadequate Thyroxine following surgery¹⁴.

The cause of percentage dissimilarity might be because of the distinction in selection criteria as in our study we included patients of hyperthyroidism with enlargement of thyroid and the patients on which the procedure of subtotal thyroidectomy was performed while other researches only included those patients who had nontoxic goiter on which subtotal Thyroidectomy was performed¹⁴.

Our study is cross sectional study which level II evidence itself, that is why a prospective interventional trial should be done in which we have to compare both the groups that is group one with taking thyroxin and group two not taking it and to see the effects on thyroid gland regrowth following surgery. Along with this, serum level of TSH should be monitored in patients with regrowth of thyroid gland following surgery and in patients in which

regrowth did not occur 3 to 6 years following subtotal Thyroidectomy, this is the way we can find out the association between TSH level and regrowth of thyroid gland and it will guide us the use of thyroxin following thyroid surgery.

CONCLUSION

Regrowth of thyroid gland mostly occurs between 3 to 6 years after the surgery and usually occurs in younger patients (25 – 35 years) at the time of Primary Surgery. To avoid the regrowth of thyroid gland, Thyroxin should be taken in proper postoperative dose.

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