**Original Article**

# Complications of Thyroid Surgery

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## ABSTRACT

**Objectives**: To determine the percentage of complications in thyroid surgery & compare these complications with the other national & international studies.

**Study Design:** A descriptive study.

**Place and Duration of Study**: The study was conducted in the department of Surgery,Foundation University Medical College and Fauji Foundation Hospital Rawalpindi from 1stJanuary2009 to 31stDecember 2009.

**Patients and Methods:** 192 patients above the age of 14 who consented were included in the study. General physical & loco regional examination was done in OPD. Thyroid function tests (T3, T4, and TSH) were done in all the patients besides other routine investigations. FNAC & thyroid scan was done in only selected patients. Anemia, hypertension& other comorbid condition, if present, were corrected & assessed by anesthetist in the pre admission clinic. Onlyeuthyroidpatients, both clinically & biochemically & fit for general anesthesia were admitted for operation. Subsequently all the patients were subjected for surgery& the specimens were sent for histopathology after visual examination. Pre as well as per operative findings were recorded on a specially designed proforma. The data were then entered in the computer for analysis & conclusions were drawn

**Results:** Total of 192 patients operated for benign thyroid disease in year 2009. Age ranges between 14 to 80 with 120 patients below the age of 40. Out of 192 patients, only 6 were males.90 patients were operated for pressure symptoms, 78 for cosmetic reasons & 24 for toxic symptoms. Subtotal thyroidectomy was done in 132 patients while 24 patients ended up with near total & 36 were candidates for lobectomy. 6 patients had symptoms ofRLN damage while 24 develop parathyroid insufficiency post operatively. All these patients managed conservatively & discharge on 2nd or 3rd post op day. They regain normal voice& normal serum calcium levels by the end of 3 months.

**Conclusion:** Subtotal thyroidectomy is one of the commonest procedure done by the surgeons of Rawalpindi Islamabad region. Maximum effort should be done to optimize the patients preoperatively. If patients are euthyroid& assessed carefully for anesthesia fitness before operation, chances of per or post- operative complications are negligible.

**Key Words:** Recurrent laryngeal nerve, hoarseness, thyroid storm, hypo parathyroidism, goiter..

## INTRODUCTION

Though the incidence of goiter is remarkably decreased in the last 30 years due to introduction of iodinated salt, still its incidence is very high in the northern parts of Pakistan & Kashmir which is labeled as goiter belt due to the high incidence of disease[1-5]. Probably it is due to water used for drinking & cooking purpose the source of which is natural springs with low levels of iodine. The main factor governing the prevalence of thyroid disease is the iodine content of daily diet.

The major complications of thyroid surgery are RLN damage, parathyroid insufficiency& bleeding. Local wound infection, keloid formation, damage to trachea & thyroid storm is rarely seen now days. Of all the above mentioned complications, most annoying & life threatening complication is damage to the RLN specially if occurs bilaterally. The purpose of the study was to assess the complication rate in benign disease & compare it with national& international studies.

## PATIENTS AND METHODS

The study was conducted by the department of General Surgery, Foundation University Medical College (FUMC) &Fauji Foundation Hospital Rawalpindi between 1st January to 31st December 2009 for the period of one year. 192 patients above the age of 14 who consented were included in the study. General physical & loco regional examination was done in OPD. Thyroid function tests (T3, T4, and TSH) were done in all the patients besides other routine investigations. FNAC & thyroid scan was done in only selected patients. Anemia, hypertension& other comorbid condition, if present, were corrected & assessed by anesthetist in the pre admission clinic. Onlyeuthyroidpatients, both clinically & biochemically & fit for general anesthesia were admitted for operation. Subsequently all the patients were subjected for surgery& the specimens were sent for

histopathology after visual examination. Pre as well as per operative findings were recorded on a specially designed proforma. The data were then entered in the computer for analysis & conclusions were drawn.

**Exclusion Criteria**

All the patients who had evidence of malignancy & previous operations on thyroid were excluded from the study.

# RESULTS

Total of 192 patients operated for benign thyroid disease in year 2009. Age ranges between 14 to 80 with 120 patients below the age of 40 (62.5 %). Out of 192 patients, only 6 were males (3.13 %) . 90 patients were operated for pressure symptoms (46.87 %), 78 for cosmetic reasons (40.62 %) & 24 for toxic symptoms (12.5 %).

**Table No.1: Indications of thyroidectomy**

| Indications | No. of patients |
|---|---|
| Pressure symptoms | 90 - 46.8 % |
| Cosmetic | 78 - 40.62 % |
| Toxicity | 24 - 12.5 % |
| Malignancy | Nil - 0 % |

Subtotal thyroidectomy was done in 132 patients while 24 patients ended up with near total & 36 were candidates for lobectomy.

**Table No.2: Surgical Procedures.**

| Type of surgery | No. of patients |
|---|---|
| Total thyroidectomy | Nil - 0 % |
| Near total thyroidectomy | 24 - 12.5 % |
| Subtotal thyroidectomy | 132 - 68.75 % |
| Lobectomy | 30 - 15.62 % |

6 patients had symptoms of RLN damage while 24 develop parathyroid in sufficiency post operatively. All these patients managed conservatively & discharge on 2nd or 3rd post op day. They regain normal voice & normal serum calcium levels by the end of 3 months.

**Table No.3: Post op complications.**

| Complications | No. of patients |
|---|---|
| Hemorrhage | Nil - 0 % |
| Respiratory obstruction | Nil - 0 % |
| RLN injury | 6 - 3.13 % |
| Parathyroid Insufficiency | 24 - 12.5 % |
| Infection | Nil - 0 % |
| Keloid formation | Nil - 0 % |

# DISCUSSION

The mountain regions in north-west of Pakistan & Kashmir are possibly the worst affected areas in the world & are labeled as goiter belt due to high incidence of the disease in the area[6]. The recommended daily allowance of iodine is about 100 nanogram per day[3]. Commonest source of water in the hilly areas of Pakistan is obtained from snow &fountains which is very deficient in iodine & fails to meet the daily requirements. This deficiency of iodine can cause a lot of complications like goiter, cretinism, mental retardation, high infant mortality rate, decreased fertility rate & increased perinatal death rate[7].

The iodine deficiency goiter starts as diffuse involvement of the gland due to raised levels of TSH. Later on the diffuse enlargement develops multinodularity due to fluctuating levels of TSH & unequal sensitivity of thyroid cells to the stimulating harmone. Therefore multinodular goiteris the most common presentation of thyroid disease in these areas & the same was observed in this study, that is 84.37 % . The female preponderance is well known & is due to increase requirement of iodine at the age of puberty (puberty onset goiter). Another situation when females require extra iodine is during pregnancy as discuss in detail by M A Zahid et al in Annals of PIMS (January 2006). Majority of our patients were females with female to male ratio is 96.87 to 3.13& it comparable with many other studies[8-10].

Age of the patients ranged between 14-80 years with average being 35.5 years and majority of patients (62.5 %) falling below the age of 40. This reflects the period of reproductive life and therefore greater exposure to deficiencies. The average presenting age in our study is lower than that reported by Ascii et al (43 years)[10] and Steiner M et al (51.2 years) [11] . This could also be because of the population being an endemic area resident: as the goiter starts early its size increases rapidly and results in complications which compel them to seek medical advice. Therefore the patients present at a younger.

In one of the study done in Munich University on 369 patients, who underwent thyroid surgery between 2000 and 2006. 5 cases (0.83%) had a permanent recurrent laryngeal nerve paralysis. There was temporary recurrent laryngeal nerve paresis in 11 cases (1.84%). Up to 1 % incidence of temporary paralysis of RLN in subtotal thyroidectomy is acceptable as mentioned in literature for benign disease. Luckily none of our patient had permanent damage to RLN, all 6 completely recovered within 3 months.Similarly international studies are showing much higher levels of hypocalcaemia, whether transient or prolong. Scerrino G & Salamone G calculated the chances of hypocalcaemiaup to 23 % in sub-total thyroidectomy. In our center, we are using the technique of leaving inferior thyroid artery intact & selectively ligating the small branches resulting in 12.5 % chances of temporary hypocalcaemia.

# CONCLUSION

Subtotal thyroidectomy is one of the commonest procedure done by the surgeons of Rawalpindi Islamabad region. Maximum effort should be done to optimize the patients preoperatively. If patients are euthyroid & assessed carefully for anesthesia fitness before operation, chances of per or post- operative complications are negligible.

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