

Morbidity of Thyroidectomy

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A total of 141 patients with various thyroid lesions were operated at surgical unit 1, Jinnah Hospital Lahore from May 1998 to May 2000. The complications of thyroid surgery are discussed. Male to female ratio was 1:5 and the mean age at presentation was 32 years. 58% patients belonged to age group 21-30 years. Subtotal thyroidectomy was the commonest surgical procedure performed in 59 (41.8%) cases followed by monolateral lobectomy in 46 (32.6%) patients. Multinodular goiter was the most frequent histopathological lesion reported in 76 (53.9%) cases. The average postoperative hospital stay was 6.4 days. 57 (40.4%) patients developed complications: 15 (10.6%) hematomas, 14 (9.9%) wound infection, 9 (6.3%) wound seroma, 5 (3.5%) temporary recurrent laryngeal nerve palsy, 2 (1.4%) permanent recurrent laryngeal nerve palsy, 6 (4.2%) laryngeal edema, 4 (2.8%) hypothyroidism, 2 (1.4%) hypoparathyroidism. High wound morbidity in this study demands more meticulous dissection and hemostasis and attention towards better sterilization.

Keywords: Thyroidectomy, Complications, Recurrent laryngeal nerve.

Outcome of endocrine surgical diseases are measured by the success of operation at relieving the endocrinopathy and the ability of the surgeon to minimize postoperative morbidity¹. Thyroidectomy is one of the major surgical procedures being performed in general surgical practice in Pakistan. Despite a detailed knowledge of normal anatomy and increased awareness of the common anatomical variations of thyroid, morbidity of thyroidectomy still needs to be addressed^{2,3,4}. Controversy still prevails as to whether recurrent laryngeal nerve should be exposed, parathyroid glands identified and uncomplicated procedures drained⁵. The extent of resection⁶, the addition of neck dissection⁷ and reoperation for completion⁸ is often left to surgeon's preference. Each thyroid surgeon, therefore must establish an individual complication rate⁹. Present study is an attempt to highlight complications of thyroidectomy, to quantify certain risk factors' contribution to morbidity rates and to present the guidelines for rectification of the same.

Patients and Methods

This study was conducted prospectively at surgical unit 1, Jinnah Hospital Lahore over a period of two years from May 98 to May 2000. Patients with associated hyperparathyroidism and parathyroid tumors were excluded from the study. All the patients had their history taken and findings of physical examination recorded. In addition to baseline investigations, serum T₃, T₄, TSH, radioisotope thyroid scan, ECG and chest X-ray were performed. Preoperative indirect laryngoscopy was done in all patients and repeated post operatively where indicated. Serum calcium estimation was done postoperatively in patients with clinical features of hypocalcemia. FNAC of thyroid lesions was performed in all cases and ultrasonography of the neck was considered in patients with suspected or confirmed malignancy. All operation were performed under general anesthesia. Once

extended the neck was explored through a transverse cervical incision made approximately 3 cm cephalad to suprasternal notch. Strap muscles were not routinely divided. Routine recurrent laryngeal nerve identification was not undertaken and suction drainage was left to surgeon's preference. Routine direct laryngoscopy was done by the anesthetist at extubation. Resected specimen were sent for histopathological examination. Patients with temporary recurrent laryngeal nerve palsy received voice therapy and were followed up by ENT specialist. Where indicated, patients with temporary hypocalcemia (defined as serum calcium less than 2 mmol/L) were given calcium supplementation along with 1-25 dihydroxycholecalciferol. Permanent recurrent laryngeal nerve was defined as clinical dysphonia persisting six months after surgery. Our study is deficient in long term follow up of patients. The surgical complications specific to thyroidectomy were recorded and analyzed in the present study. All patients with benign thyroid lesions were followed up monthly for three months and those with thyroid malignancy are being reviewed every six months thereafter.

One hundred and forty one patients comprised this study group. 21 patients were male and 120 female. The mean age was 32 (range 17-61) years. The maximum number of patients belonged to age group 21-30 years (58%) followed by 29 (20.5%) cases in age group 31-40 years as shown in figure 1.

The duration of symptoms varied from 9 month to 18 years (mean 36 month). The average stay in hospital was 5.7 (range 3-8) days for the patients with uneventful recovery and 8.1 (range 5-17) days for those who developed complications.

Subtotal thyroidectomy was the commonest surgical procedure performed in 59 (41.8%) patients followed by monolateral lobectomy done in 46 (32.6%) cases as summarized in table I.

Figure I.

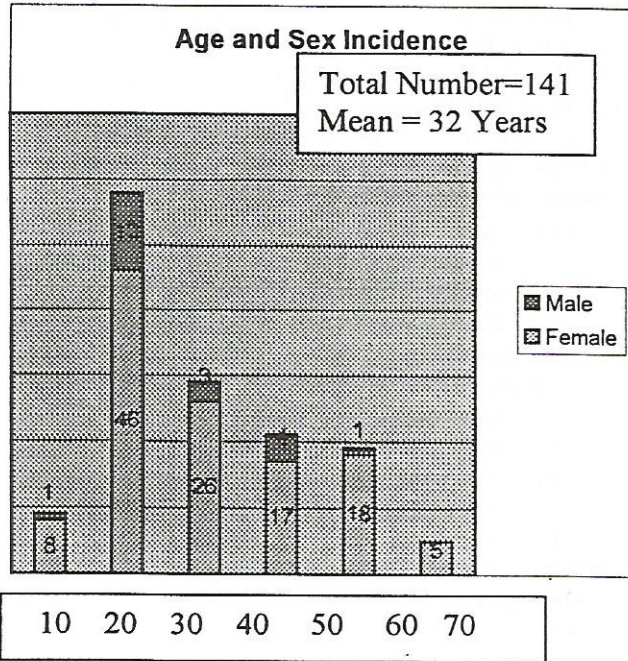


Table I Surgical Procedures For Thyroid Diseases n=141

Surgical Procedure	n=	%
Benign lesions		
Subtotal thyroidectomy	59	41.8
Lobectomy	46	32.6
right	20	
left	26	
Lobectomy and isthmectomy	18	12.7
Isthmectomy	3	2.1
Completion thyroidectomy	4	2.8
Malignant lesions		
Total /near total thyroidectomy with neck dissection	6	4-2
Completion thyroidectomy	5	3-5

Completion thyroidectomy (defined as removal of contralateral lobe after primary surgery) was done for 4(2.8%) benign and 5(3.5%) malignant thyroid lesions. Multinodular goiter was the commonest histopathological lesion reported in 76(53.9%) patients followed by thyroid hyperplasia observed in 41(29%) cases as shown in table II.

Table II Histopathology Results n=141

Histopathology	N=	%age
Multinodular goiter	76	53.9
Thyroid hyperplasia	41	29.0
Colloid goitre	9	6.3
Follicular adenoma	8	5.6
Papillary carcinoma	5	3.5
Medullary carcinoma	2	1.4

Various complications of thyroidectomy recorded in the present study are outlined in table III.

Table III Complications of Thyroid Surgery n=141

Complications	n=	%
Wound hematoma	15	10.6
Superficial	12	8.5
Deep	3	2.1
Abscess	14	9.9
Wound seroma	9	6.3
Temporary recurrent laryngeal nerve palsy	5	3.5
Permanent recurrent laryngeal nerve palsy	2	1.4
Bilateral recurrent laryngeal nerve palsy	1	0.7
Laryngeal edema	6	4.2
Tracheomalacia	3	2.1
Primary hemorrhage	10	7.0
Reactionary hemorrhage	3	2.1
Hypothyroidism	4	2.8
Hypoparathyroidism	2	1.4

Wound hematoma was the most frequent complication observed in 15 (10.6%) cases. Nine patients with superficial hematoma showed no progression and were treated conservatively. Three superficial and three deep hematoma were reexplored under GA with a median of 120 minutes (range-thirty minutes to four days) after primary surgery with no further complications. All wound abscesses were treated with incision and drainage and pus was sent for culture and sensitivity results. Staph aureus was the most common organism found in 11(68.7%) cases. The rates of temporary and permanent recurrent laryngeal nerve palsy were 3.5% and 1.4% respectively. The rate of temporary recurrent laryngeal nerve palsy was higher after total and completion thyroidectomy as compared with other procedures; three out of six (50%) patients who underwent total thyroidectomy and two out of five (40%) patients who had completion thyroidectomy developed temporary recurrent laryngeal nerve palsy. Laryngeal edema was a cause of acute respiratory obstruction in 6(4.2%) cases; four responded to steroid therapy and two needed tracheostomy. Tracheomalacia was noted in three (2.1%) patients and all of them underwent tracheostomy.

Discussion

In the present study, the rate of temporary and permanent recurrent nerve palsy were 3.5% and 1.4% respectively which are in agreement with other reported literature^{10,11,12} as outlined in table IV.

Table IV. Comparison of temporary and permanent recurrent laryngeal

Authors	Temporary RLN palsy (%)	Permanent RLN palsy (%)
Bergamaschi et al.	2.9	0.5
Jatzko et al.	2.7	0.5
Tocchi et al.	2.1	0.8
Wagner et al.	3.0	1.8
Guraya et al.	3.5	1.4

Reported recurrent laryngeal nerve palsy rates vary widely depending on patients selection, surgeon's patient volume and the type of thyroidectomy¹³. In their series of 1163 consecutive thyroidectomies, Berganaschi et al¹⁰ have concluded that there was no difference between the number of temporary and permanent recurrent laryngeal nerve paralyses after recurrent laryngeal nerve exposure and that occurring after non-exposure. On the contrary, Jatzko et al¹¹ have shown that temporary and permanent recurrent laryngeal nerve palsy rates were lower in hands of surgical teams with a policy of

routine attempt to nerve identification than when nerve exposure was left to surgeon's preference. According to Meghrebi et al¹⁴, when 420 of 2010 nerves were not only identified but dissected free and held with a retractor, there was no difference in temporary and permanent recurrent recurrent laryngeal nerve palsy rates. RLN palsy rates are reported to be lower when intracapsular dissection technique was used^{2,15}. In the present study, bilateral recurrent laryngeal nerve palsy was observed in one (0.7%) patient who was operated for multinodular goitre and led to acute asphyxia which necessitated tracheostomy. Indirect laryngoscopy performed five weeks later confirmed full recovery of vocal cord movements and tracheostomy tubes were removed thereafter. Wound morbidity included 15(10.6%) hematomas, 16(11.3%) wound seroma, which is comparable with the results reported by Shaikh et al¹⁶ (wound hematomas 17.2%, abscess 10.3%, seroma 4.3%), though this incidence is much higher than what is shown in other literature¹⁰ (1.5% hematoma, 0.5% abscess, 2.0% seroma). Improper hemostasis and poor sterilization probably contributed to this high incidence of local wound morbidity in our series though Pasiaka¹⁷ has pointed out the surgeon as the most important prognostic factor in thyroid surgical disease! Abdel Rahim et al¹⁸ have concluded in their prospective study of 103 consecutive thyroidectomies that a planned tracheostomy at the end of thyroidectomy is safe and may obviate the need of an unplanned emergency procedure. In view of this, multiple preoperative risk factors were mentioned which may be useful in predicting the need for planned tracheostomy following thyroidectomy: goitre for more than five years, preoperative recurrent laryngeal nerve palsy, thyroid cancer, radiological evidence of tracheal narrowing/deviation, difficult intubation and evidence of retrosternal extension. In this series, all five patients who underwent tracheostomy had one of the aforementioned risk factors (three patients had goitre for more than five years, one had follicular carcinoma of thyroid and one had preoperative recurrent laryngeal nerve palsy) which further substantiate the need to quantify these risk factors.

The present study failed to demonstrate and protective value from the use of drains. However, the hospital stay was shorter in non-drain group of patients. Routine drainage is therefore unnecessary^{19,20,21} and

should be used rather selectively^{22,23}. In our study, two (1.4%) patients developed permanent hypoparathyroidism which was defined as serum parathyroid hormone level below 10ng/L requiring treatment to maintain calcemia within the reference range for more than three months. Out of these, one (0.7%) had completion thyroidectomy and one (0.7%) underwent total thyroidectomy for papillary carcinoma of thyroid. An increase rate of permanent hypoparathyroidism has also been demonstrated by Khadra et al¹⁵ (2.1%) and Osime et al²⁴ (6.5%) particularly following completion thyroidectomy and adding neck dissection to total thyroidectomy. We thus share the view that completion thyroidectomy should be always avoided whenever possible⁸.

To conclude, the present study stresses the need for improvement in morbidity rates following thyroid surgery. Identification of parathyroids and recurrent laryngeal nerve does not reduce morbidity. Intracapsular dissection should be considered for benign lesions to avoid inadvertent damage to recurrent laryngeal nerve and use of drains should be restricted to large dissections. Adherence to scrupulous dissection, meticulous hemostasis and adequate sterilization cannot be over emphasized.

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