AN AUDIT OF THYROID SURGERY: THE HYDERABAD EXPERIENCE

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ABSTRACT

Objective: To make an audit of thyroid surgery performed in two private hospitals at Hyderabad.

Study design: Descriptive study.

Place and duration of study: This study was carried out at two private hospitals, mainly at Isra University Hospital, Hyderabad over a period of three years from April 2005 to March 2008.

Patients and Methods: 140 patients with goiter were operated after complete investigative work up during the above mentioned period. Various complications of thyroid surgery and histopathology reports were noted and compared with national and international literature.

Results: The benign lesions were 89% while 11% lesions were malignant. Papillary carcinoma was the most common malignant lesion while colloid goiter was the most common benign lesion. The overall complication rate was 10.7%, hypocalcaemia being the most frequent complication followed by recurrent laryngeal nerve (RLN) injury.

Conclusion: Colloid goiter is the most common benign lesion of the thyroid gland while papillary carcinoma is the most common malignant lesion of thyroid gland. The major complications of thyroid surgery were hypocalcaemia and RLN injury.

Key words: Fine needle aspiration cytology, Hypocalcaemia, Recurrent laryngeal nerve injury, Thyroid surgery

INTRODUCTION

Thyroid enlargement in the form of solitary, multinodular or diffuse goiter is inexplicably frequent surgical problem and affect approximately one-third of adult world population[1]. The appropriate clinical management is focused primarily on excluding thyroid cancer and also on evaluating thyroid function and mechanical obstruction. The initial work up should include a complete clinical review, a thyroid ultrasonography, laboratory assessment of thyroid functions and where indicated, a cytological assessment of the nodule by FNAC. Thyroid disorders are more common in females as compared to males and its prevalence increases with age. The prevalence of a palpable thyroid nodule is approximately 5% in women and 1% in men in iodine sufficient parts of the world[2]. Thyroid surgery is one of the most frequently performed surgical procedure world wide, even if the risks of lethal postoperative complications prevented its evolution and diffusion until the beginning of the 20th century[3]. At present, the mortality of this procedure approaches 0% and overall complication rate is less than 3%. Nonetheless, major complications of thyroid surgery (i.e. compressive haematoma, recurrent laryngeal nerve injury and hypoparathyroidism) are still fearful complications.

The objective of this study was to make an audit of thyroid surgery performed in two private hospitals at Hyderabad.

PATIENTS AND METHODS

This study was carried out at the Isra University Hospital, Hyderabad, a private teaching university hospital and Memon Charitable Hospital, Hyderabad, a private non-teaching hospital over a period of three years from April 2005 to March 2008. All patients with goiter, who underwent any sort of thyroid surgery (i.e. lobectomy, isthmusectomy, subtotal thyroidectomy, near total thyroidectomy or total thyroidectomy) were included in this study. All patients were electively admitted via out patient department. Investigations like thyroid function tests, serum calcium, thyroid scan, ultrasonography and

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FNAC (where indicated) were performed. Indirect laryngoscopy was done a day before surgery by ENT surgeon to see any preoperative vocal cord abnormality.

Thyroid surgery was performed by collar incision two finger breadths above the sternal notch. Superior and inferior subplatysmal flaps was raised from sternal notch to thyroid cartilage. The strap muscles were not routinely divided except for large goiters. The middle thyroid veins were ligated and divided first whenever found. The superior thyroid pedicle was individually ligated and divided after retracting it downward and laterally after identifying the external branch of superior laryngeal nerve. The recurrent laryngeal nerve (RLN) was identified above the level of the inferior thyroid artery. Inferior thyroid artery was usually ligated in continuity. Procedure was completed according to extent of surgery. The neck was routinely drained with suction drains as long as required. Patients were usually discharged by 48-72 hours postoperatively. All patients had their vocal cords checked at the time of extubation. All patients had serum calcium analysis on the day of surgery and on two subsequent days.

Permanent RLN palsy was labeled when persisting for more than six months after surgery. Patients having serum calcium level less than 7mg/dl, requiring calcium and / or vitamin D supplements and having resolved by six months were defined as having temporary symptomatic hypocalcemia. Patients having serum calcium level less than 7mg/dl for more than six months were defined as having permanent hypocalcemia.

The data was collected on a pre-designed proforma and entered & analyzed in SPSS 16.0 software statistical program.

RESULTS

During the above mentioned study period, 140 patients underwent different thyroid operations ranging from hemithyroidectomy to total thyroidectomy. Female to male ratio was 9:1 with mean age of 32 years (SD± 8.224) and range of 16-68 years. Of these, 52 (37.1%) were hemithyroidectomies, 57(40.7%) subtotal thyroidectomies (STT), 11 (7.8%) near total thyroidectomies, 19 (13.5%) total thyroidectomies and one (0.7%) was isthmusectomy only.

A total of 125 (89%) lesions were benign and 15 (11%) turned out to be malignant. The commonest benign pathological lesion encountered was colloid goiter accounting for 60% of all thyroid lesions. Other benign lesions were follicular adenoma and lymphocytic thyroiditis observed in 38 (27.1%) and 3 (2%) patients respectively. The overall distribution of thyroid lesions by histopathological type is shown in table 2. Papillary carcinoma was found to be the commonest malignant thyroid lesion, observed in 6.4% all thyroid lesions. This was followed by follicular carcinoma seen in 2.1% of all thyroid lesions.

The postoperative complication rate was 10.7%. The hypocalcaemia rate was 3.5%, accounted as the most common postoperative complication. Temporary hypocalcaemia was seen in four (2.8%) patients while permanent hypocalcaemia occurred in one (0.7%) patient. The RLN injury was observed in 2.8% of patients. It was temporary neuroprexia in two (1.4%) patients which recovered within one month after surgery. In two (1.4%) patients, there was permanent RLN injury, both of these patients had infiltrating papillary thyroid cancers in the posterior aspect of lobe. The lobe and cancer was carefully dissected out but postoperatively both patients had RLN palsy. Other post operative complications included postoperative bleeding in two (1.4%) patients, seroma formation in two (1.4%) patients, stitch sinus and wound infection each in one patient (0.7%). There was no post operative mortality in this study.

DISCUSSION

In early twentieth century, thyroidectomy became a safe and acceptable operation with the advent of safe general anaesthesia, antisepsis, fine surgical instruments and development of newer surgical and haemostatic techniques[4]. Successful thyroid surgery depends upon an intimate knowledge of surgical anatomy of neck with the provision of good operative exposure and skilful dissection

Table: Histopathological types of thyroid lesions (n=140)

S.No	Histopathological diagnosis	Number	%
1	Colloid goiter	84	60
2	Follicular adenoma	38	27.1
3	Papillary carcinoma	09	6.4
4	Follicular carcinoma	03	2.1
5	Lymphocytic thyroiditis	03	2.1
6	Mixed papillary + follicular	02	1.4
7	Anaplastic carcinoma	01	0.71

to identify and preserve RLN and parathyroid glands.

The overall frequency of non-neoplastic lesions in this study was 89% as compared to 11% of neoplastic lesions. The commonest non neoplastic lesion in this study was colloid goiter including diffuse and multinodular goiters which constituted 60% of the thyroid specimens. This is consistent with some local studies in which multinodular goiter and diffuse colloid goiters were found to be the commonest pathologies of the thyroid lesions[5-7]. Follicular adenomas were seen in 27.1% of the specimens and it was the 2nd most common benign thyroid lesion. This finding is consistent with the observation of Suster[8] and Bouq[9] but in contrast to Virk et al showing follicular adenoma to be more common than colloid goiter (65% Vs 30%)[10]. Follicular adenoma clinically presents as solitary discrete cold nodule. FNAC does not help in differentiating a follicular adenoma and carcinoma, a diagnosis which is dependent upon the presence of capsular and vascular invasion. This capsular and vascular invasion is not well appreciated in cases of FNAC. That's why the final diagnosis of follicular carcinoma depends upon histopathology report and not on FNAC. Patients with clinically discrete solitary nodules in whom FNAC shows "follicular lesion" should always undergo total lobectomy to exclude the diagnosis of follicular carcinoma on final histopathology report. The overall frequency of malignancy in this study was about 11%. This is consistent with figures from various international studies[11,12]. but in contrast to Mofti et al observing higher incidence of thyroid malignancies (29%) in a study of 158 patients[13]. In this study papillary carcinoma was the most common malignant thyroid lesion observed in about 60% (9/15) of the lesions.

The morbidity of thyroidectomy from its specific complications continues to be a matter of concern. The overall postoperative complication rate in this study was 10.7%. Post operative hypocalcaemia can be a significant clinical problem, which may delay patient's discharge and requires a considerable postoperative care in immediate postoperative period. In this study, hypocalcaemia was noted in 3.5% of patients, out of which one patient (0.7%) developed permanent hypocalcaemia. This frequency is consistent with some international[14,15] and national studies[16-18].

The exact incidence of RLN injury is unknown. Different studies have reported varying prevalence of 0 -14%[19-21]. This difference in complication rates reflects variation in surgical expertise, nature of operation, number of surgeries performed at that particular center. In this study, the frequency of RLN injury was 2.8%. Out of these, two patients (1.4%) had permanent RLN palsy. Both of these patients had infiltrating papillary thyroid cancers in the posterior aspect of the lobe. There was no palsy in benign groups. The permanent RLN palsy of 1.4% in this study can be compared with recent literature reporting this rate to be between 0.3 to 1.7%[19,22,23]. The temporary RLN palsy rate of 1.4% in this study is also consistent with the findings observed in some national studies up to 4.7%[17,18,24]. Identification of RLN at surgery is the fundamental step to avoiding damage. When this policy is employed, any nerve damage is likely to be a transient neuropraxia and recovery will be expected, usually after a period of few weeks or months. If the nerve has not been identified, then paralysis will be permanent in up to one third of patients whose nerves have been injured. The anatomical relationship of RLN and inferior thyroid artery is highly variable and the operating surgeon should have complete knowledge of the normal

as well as abnormal variation of the anatomy of this structure. Ligation in continuity of inferior thyroid artery and careful usage of bipolar diathermy minimizes the risks of RLN injury. However this incidence increases in cases of malignant thyroid diseases as noted by Spear et al[25].

CONCLUSION

Thyroid disorders are one of the common problem encountered in general surgical practice. Colloid goiter is the most common benign lesion of the thyroid gland while papillary carcinoma is the most common malignant lesion of thyroid gland. The major complications of thyroid surgery were hypocalcaemia and RLN injury followed by postoperative bleeding and Seroma formation.

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