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POSTOPERATIVE COMPLICATIONS OF THYROIDECTOMY – AN EXPERIENCE AT TERTIARY CARE HOSPITAL

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ABSTRACT:

Objective: to determine the frequency of this complication in thyroid surgeries, and to review and identify risk factors responsible for the calculated frequency.
Material and Methods: This descriptive study was carried out in the Department of Surgery Liaquat University of Medical & Health Sciences, Jamshoro June 2011 to January 2012. The study included patients undergoing thyroid surgery. These patients were followed for postoperative complications up to one year. Patients who develop were further analyze and d to calculate its frequency and associated factors
Results: During the study period, 128 patients underwent various types of thyroid surgeries. with axillary clearance as per inclusion criteria. The age of patients ranged from males and 94 females), with goiter who under-went thyroid surgery were included. Their age range was 18-78 years, with mean age of 33.43± 9.87 years. The most frequent surgery performed was subtotal thyroidectomy (59, 46.09%) followed by hemithyroidectomy (49, 38.28%).. Out of total 128 patients 34 were males and rest were females. Overall rate of complication was 11,7.The analysis of data showed that the most common complication washypocalcemia followed by recurrent laryngeal nerve palsy
Conclusion: Thyroid surgeries is a no longer leads tomorbid complications . The preventable contributory factors should be apprehended during and after surgery to avoid this complication

Key Words: Complication, Thyroid cancer

INTRODUCTION:

Thyroid gland enlargement in the form of solitary, multinodular or diffuse goiter is common surgical problem and affectpredominantly female population. About one-third of adult world population is suffering from this problem 1. Thyroid surgery encompasses variety of procedures ranging from simple lobectomy to total thyroidectomy. Thyroid surgery is mainly performed by general surgeon but otorhinolaryngology surgeon, thoracic surgeon, oncological surgeons, and head and neck surgeons have also been performing the procedures frequently.. Theodor Kocher was the first surgeon who performed total thyroidectomy in 1909 with minimal risk to recurrent laryngeal nerve and parathyroid glands. His accomplishment not only brought personal accolades to him but led to a reduction in surgical mortality from 50% to less than 4.5% 2.

The outcome and complication rates are largely dependent on surgeon's skill and experience, the extent of surgery, indication of surgery and number of thyroid surgeries performed at that particular centre. Complications of any surgical procedure are a sensitive measure of the quality. Reported complications following thyroid surgery are rare but their consequences can often be life -threatening as compared to the some other surgeries being performed routinely. Complication rate after thyroid surgery varies widely from surgeon to surgeon and from center to center, as reported in the literature.

An understanding of anatomy and physiology of the thyroid gland and the surgical approach, can help to detect possible complications postoperatively. At present, the mortality of this procedure approaches 0% and overall complication rate is less than 3% 3. Major complications of thyroid surgery are compressive haematoma, recurrent laryngeal nerve injury and hypoparathyroidism. Although seen very rarely now but these complications are any surgeon's worst nightmare. This study was undertaken with the objective to determine the frequency of early postoperative complications after thyroid surgery.

MATERIAL & METHODS:

This descriptive study was carried out in the Department of SurgeryLiaquat University of Medical & Health Sciences, Jamshoro June 2011 to January 2012. 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 through out patient department. Baseline investigations like thyroid function tests, serum calcium, thyroid scan, ultrasonography and FNAC (where indicated) were performed. Indirect laryngoscopy was done a day before surgery by ENT surgeon to see any preoperative vocal cord abnormality. Patients with recurrent goiter, thyroid malignancy and those who failed to complete one year follow up, were excluded from the study.

Capsular dissection was done in all cases. This is in the avascular plane outside the capsule, but very close to it, minimizing blood loss. The thyroid gland was approached by separating the strap muscles in the midline, digitally retracting the upper pole of the lobe downwards and ligating the superior thyroid artery flush with the thyroid. Surrounding tissues are separated from the capsule by blunt dissection, from above down, till the middle thyroid vein is encountered in the middle of the gland. This vein is smaller in length and is doubly ligated flush with the gland and cut between sutures. At this level keeping close to the thyroid capsule prevents damage to the recurrent laryngeal nerve behind the prevertebral fascia and also facilitates recognition of the parathyroid glands preventing its inadvertent removal. The branches of the inferior thyroid artery are ligated separately very close to the gland. Drains were not routinely used in any of the patients.Patients were kept in hospital for 48–72hours postoperatively depending upon the patient's condition. Vocal cordsof all the patients were checked at the time of extubation. The serum calcium analysis of entire study population was done twice , first on the day of surgery and later ontwo subsequent days.Recurrent laryngeal nerve palsy was labeled whenpersisting for more than 6 months after surgery.Hypocalcaemia was also monitored by performing serum calcium levels. It was divided in temporary and permanent categories.Temporary symptomatic hypocalcaemia was consideredwhen serum calcium level was less than 7 mg/dl,requiring calcium and/or vitamin D supplements andthis hypocalcaemia was resolved within 6 months.Permanent hypoparathyroidism was considered whenhypocalcaemia persists for more than 6 months despiteregular calcium and vitamin D supplements. Thepatients were followed up for minimal of 6 months to 1 year post surgery for documentation of complication associated with the procedure. The data was analyzed using SPSS 16.0 todetermine the impact of age group, gender and operationcategory over the complication rate.Descriptive statistics like frequency, percentage, averages etc were computed for data presentation.

TABLE 1:
Types of surgeries performed in study population

Type of Surgery	No. of Patients	Percentage
Total Thyroidectomy	8	6.35
Subtotal thyroidectomy	59	46.09
Near Total thyroidectomy	9	7,2
Hemi thyroidectomy	49	38.28
Lobectomy	3	2.3

TABLE 2:
Complications associated with thyroid surgery

Complication	No. of Patients	Percentage
Hypocalcemia	7	5.4
Recurrent laryngeal nerve injury	4	3.21
Infection	2	1.05
Bleeding	1	0.7
Seroma	1	0.7

RESULTS:

In our study a total of 120 patients with a male to female ratio of 1:3 (34 males and 94 females), with goiter who under-went thyroid surgery were included. Their age range was 18-78 years, with mean age of 33.43± 9.87 years.The most frequent surgery performed was subtotal thyroidectomy (59, 46.09%) followed by hemithyroidectomy (49, 38.28%). Table-1 shows the detailed account of different thyroid operations performed in study population.

Cumulativecomplication frequency was 11.7% (15 patients). The most common complication seen was hypocalcemia. The temporary hypocalcemia was seen in 5 patients (3.9%) while permanent hypocalcemia occurred in 2 patients out of total study population (1.5%). The patients who developed permanent hypocalcemia were of thyroid carcinoma and total thyroidectomy was type of surgery performed in these patients. Recurrent Laryngeal nerve injury was observed in 3.15% of patients, 3 of these patients had transient recurrent laryngeal nerve paralysis while one had permanent injury. The transient RLNP spontaneously recovered within 20 weeks. All patients in our study had unilateral vocal cord paralysis. Less common complication were seroma formation, wound infection, and post-operative bleeding. The complications associated with surgery were more common in ages more than 40 years, male gender and near total thyroidectomy or more extensive surgery. Thecomplications associated with surgery are described in table Table-2.

DISCUSSION:

Surgical management of the thyroid disease has changed significantly over the course of the twentieth century with the tremendous advances in the general anaesthesia, antisepsis, surgical instrumentation and development of newer surgical and haemostatic techniques[3]. The published literature shows progressive decline in

the morbidity and mortality associated with the thyroid surgeries. However, there is large body of evidence in published data showing variety of complications associated with thyroid operations[4-6]. The frequency of the complications depends upon the experience and expertise of the surgeon, type of surgery, duration of surgery and indication of the surgery.

The overall postoperative complication rate in this study was 11.7% and no mortality was reported. Our study shows almost similar frequency of the complication as reported in other studies in Pakistan[7-9]. In comparison to this, international studies report nearly 0% mortality rate and usually less than 3% rate [5-6]. The difference from the published international frequency can be attributed to factors like infection control, surgeons proficiency etc.

The most common complication in our study population hypocalcemia with an overall frequency of (5.4%).The temporary hypocalcemia was seen in 5 patients (3.9%) while permanent hypocalcemia occurred in 2 patients out of total study population (1.5%). The patients who developed permanent hypocalcemia were of thyroid carcinoma and total thyroidectomy was type of surgery performed in these patients. The incidence of permanent hypoparathyroidism has been reported to be as high as 30% (range 11% to 30%) when total thyroidectomy and radical neck dissection are performed, and as low as 0.9% for subtotal thyroidectomy. In our cases with total thyroidectomy the frequency seems to be on higher side ie 25% but it is still within the reported range[10]. The overall reported rate in pour study is well within the reported local[11] as well international studies[12-13].

RLN injury is an annoying but avoidable complication which results from severing, clampingor stretching of the nerve during surgery and mayresult in severe untoward sequelae for the patient. Prevalence of 0.5% to 14% has been reported after primary thyroid surgery in published literature [14-15]. Review of literature revealed that the prevalence of RLN palsy varies from centre to centre depending upon the level of experience in thyroid surgery and the nature of surgery. Aytec and colleagues 13 reported 3.5% and 1.2% incidence of transient and permanent RLN injury, respectively, whereas, Chaing 14 has reported figures of 5.1% and In our study, it was observed that RLN carries higher risk of injury in patients with huge multinodular goiter. Recurrent Laryngeal nerve injury was observed in 3.15% of patients, 3 of these patients had transient recurrent laryngeal nerve paralysis while one had permanent injury. The transient RLNP spontaneously recovered within 20 weeks. All patients in our study had unilateral vocal cord paralysis. Similarly, patients undergoingtotal thyroidectomy or lobectomy and subtotalthyroidectomy are more at risk of getting RLNinjury;.12.5 and 7.25% respectively had transientand 5.3% and 3.65% respectively developedpermanent RLN injury. Literature revealedcomparable observation from different studies carriedout at different centers in the world[13-15].

Postoperative bleeding into the wound is a serious complication of thyroidectomy. When bleeding and haematoma occur deep to the strap muscles, the situation can rapidly develop into life threatening emergency because of associated airway obstruction. This rare complication was also observed in our study in one patient 1 (0.7%) only. This patient was re-explored and oozing from raw area was found. The reportedincidence of postoperative bleeding in the literature ranges from 0 to 5%.[13, 16] and our study results shows concordance with the published data.Seroma formation is another factor contributing to the morbidity, though not a serious complication of thyroid surgery. In our study, one (0.7%) patients developed seroma formation. This patient had a huge vascular toxic goitre. In both of these patients needle aspiration was done resulting in complete resolution.Superficial surgical site infection was observed 2(1.5%) patient and this is fairly comparable with aninternational study reporting about 2% surgical siteinfection[3].The complications associated with surgery were more common in ages more than 40 years, male gender and near total thyroidectomy or more extensive surgery. The increasing age can be additive factor in would healing. Extensive and complicated surgeries which require extended surgical time and expert surgical technique will still have increased rate of complication because of involvement of surrounding tissues,

CONCLUSION:

The post thyroidectomy complications observed in this study were hypocalcaemia, RLN injury, postoperative bleeding, seroma and wound infection. Older age group, male gender and extensive thyroid surgery were associated with statistically significant increase in complication rate. The careful surgical technique & better infection control can lead to decrease in complication frequency in thyroid surgical procedures.

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