Original Article

Frequency of Early Post Operative Complications of Thyroidectomy

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ABSTRACT

Objective: To determine the frequency of early post operative complications after thyroid gland.

Study Design: Descriptive case series study.

Place and Duration of Study: This study was carried out in all four surgical units, Liaquat University Hospital Jamshoro, from September 2009 to July 2010.

Materials and Methods: This study consisted of 100. Detailed History was taken from all the patients with special regard to the swelling infront of neck, moving up with deglutition and pressure symptoms like dyspnea, dysphagia, engorged neck veins. Detailed Clinical examination of the patient was done and recorded in proforma. Systemic review was also done to see any co-morbidity. All patients underwent for base line and specific investigations especially TSH, T3 and T4 as diagnostic modality and for assessment of thyroid disease. Inclusion criteria were that all patients after counseling for study and taking voluntary consent were included in this study above 15year of age and irrespective of their sex admitted in surgical units through outpatient department and diagnosed as case of thyroid disease on the basis of history, clinical examination and investigations. Exclusion criteria included unfit patients for general anesthesia, previous thyroid surgery, pre-operative recurrent laryngeal or superior laryngeal nerve involment and traumatic thyroid injury. Follow up of all these patients was done for period of 6 months . Results were prepared with help of tables and graphs.Data was analyzed through SPSS software version 16.0.

Results: 100 cases of thyroid were operated . Out of 100 patients included in this study 84 were women (84%) and 16 were male (16%); with male to female ratio of 1:5.2. There was wide variation of age ranging from a minimum of 10 years to 70 years with the mean age was 31.78 years . Symptoms of patients were an enlarged painless lump infront of neck in 99 (99%), Discomfort during swallowing in 42 (42%), Dyspnea in 38 (38%), Weight loss 52 (52%), Weight gain in 35 (35%), Bradycardia in 45 (45%), Tachycardia in 55(55%) , Tremors in 41(41%), heat Intolerance 43(43%) and cold Intolerance in 20 (20%) (Table 1). Clinical examination of patients revealed that thyroid gland was enlarged in 99 (99%) patients, out of whom 59 (59%) patients had Multinodular goiter, while 30 (30%) patients had Solitary Nodule (Solid /Cystic), 7 (7%) patients had thyroid cancer and 4 (4%) patients had a thyrotoxicosis. The commonest surgical procedure done was subtotal thyroidectomy in 62 patients (62%), near total thyroidectomy in 28 patients (28%) and lobectomy with isthmusectomy in 10 patients (10%). The common early postoperative complications seen in this study were haematoma formation 9% patients, hypoparathyroidism 3% patients , wound infection 6% patients, laryngeal nerve injury 5% patients and thyrotoxicosis storm in 2% patients (Chart No.2).

Conclusion: We conclude that patients who undergo thyroidectomy an increased risk of developing postoperative hypoparathyroidism. Despite the fact that total thyroidectomy is a more involved procedure that exposes more parathyroid glands and recurrent laryngeal nerves to surgical risk than unilateral thyroid lobectomy, it is an inherently safe procedure.

Key Words: Thyroidectomy, Early Complication.

INTRODUCTION

Goiter means enlarged throid. It is most common endocrine disorder required surgical intervention. According to WHO (World Health Organization) Report 5% of the world population is suffering from goiter and 75% of this lives in iodine deficient area [1].

Surgery on the thyroid gland was first attempted in around 500 A.D. Albucosis (Al-Zahrawi) Famous Muslim Surgeon was credited with earliest pioneer thyroid surgeon in 1000 A.D[2]. In the 1880, Theodor Billroth the leading thyroid surgeon perform numerous thyroid surgeries with high mortality rate of about 50 % , common cause of this high mortality was post operative tetany (secondary to removal of parathyroid gland , whose function was not well understood at that time), hemorrhage , infection and poor surgical technique [3]. The greatest contribution to understanding of the thyroid surgery was made by Theoder Kocher (1841-1917), also known as the father of the thyroid surgery had performed over 5000 thyroidectomies [4], improve the surgical and sterilization techniques results in fall of high mortality rate to around 1% [4].

The complications following thyroid surgery are rare but their consequences may often be life threatening. These complications often result from either poor surgical technique or from metabolic disturbance that occur after thyroid surgery. Some complications are more frequent than others. Early complications associated with thyroidectomy include following; Postoperative bleeding or Haematoma [5] , Laryngeal nerve injury [6], Hypocalcemia or Hypoparathyroidism (parathyroid deficit) is also one of common complication after thyroid surgery and wound infection is also common but depends upon sterilization technique. Thyrotoxic storm, sympathetic nerve injury, chylous fistula and seroma formation are also early postoperative complications but are rare[7].

MATERIALS AND METHODS

This study was carried out in the all general surgical units at Liaquat University Hospital Hyderabad, Sindh , Pakistan from 13th September 2009 to 15 July 2010. This study consisted of 100 patients of diagnosed case of thyroid disease were admitted.

Detailed History was taken from all the patients with special regard to the swelling infront of neck , moving up with deglutition and pressure symptoms like dyspnea, dysphagia, engorged neck veins. Detailed Clinical examination of the patient was done and recorded in proforma. Systemic review was also done to see any co-morbidity.

All patients underwent for base line and specific investigations especially TSH , T3 and T4 as diagnostic modality and for assessment of thyroid disease (eg: Hyperthyroidism, Hypothyroidism). Inclusion criteria were that all patients after counseling for study and taking voluntary consent were included in this study above 15year of age and irrespective of their sex admitted in surgical units through outpatient department and diagnosed as case of thyroid disease on the basis of history , clinical examination and investigations . Exclusion criteria included unfit patients for general anesthesia , previous thyroid surgery , pre-operative recurrent laryngeal or superior laryngeal nerve involvement and traumatic thyroid injury. Follow up of all these patients was done for period of 6 months . Results were prepared with help of tables and graphs. Data was analyzed through SPSS software version 16.0.

RESULTS

100 cases of thyroid were operated . Out of 100 patients included in this study 84 were women (84%) and 16 were male (16%); with male to female ratio of 1:5.2 (Figure 1). There was wide variation of age ranging from a minimum of 10 years to 70 years with the mean age was 31.78 years .

Symptoms of patients were an enlarged painless lump infront of neck in 99 (99%), Discomfort during swallowing in 42 (42%), Dyspnea in 38 (38%), Weight loss 52 (52%), Weight gain in 35 (35%), Bradycardia in 45 (45%), Tachycardia in 55(55%), Tremors in 41(41%), heat Intolerance 43(43%) and cold Intolerance in 20 (20%) (Table 1).

Clinical examination of patients revealed that thyroid gland was enlarged in 99 (99%) patients, out of whom 59 (59%) patients had Multinodular goiter, while 30 (30%) patients had Solitary Nodule (Solid /Cystic), 7 (7%) patients had thyroid cancer and 4 (4%) patients had a thyrotoxicosis. The commonest surgical procedure done was subtotal thyroidectomy in 62 patients (62%), near total thyroidectomy in 28 patients (28%) and lobectomy with isthmusectomy in 10 patients (10%).

The common early postoperative complications seen in this study were haematoma formation 9% patients, hypoparathyroidism 3% patients , wound infection 6% patients, laryngeal nerve injury 5% patients and thyrotoxicosis storm in 2% patients (Figure 2).

Table No.1: Different symptoms of patients with percentage.

Symptoms of patients	No. of patients (n=100)	Percentage (%)
Lump infront of neck	99	99%
Discomfort during swallowing	42	42%
Dyspnea	38	38%
Weight loss	52	52%
Weight gain	35	35%
Bradycardia	45	45%
Tachycardia	55	55%
Tremors	41	41%
Heat Intolerance	43	43%
Cold Intolerance	20	20%

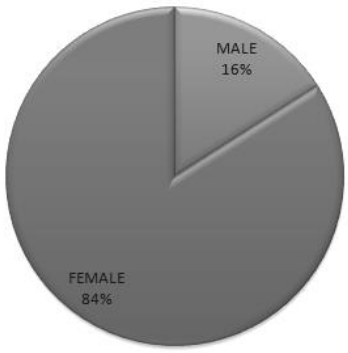

Figure No.1: Gender Distribution

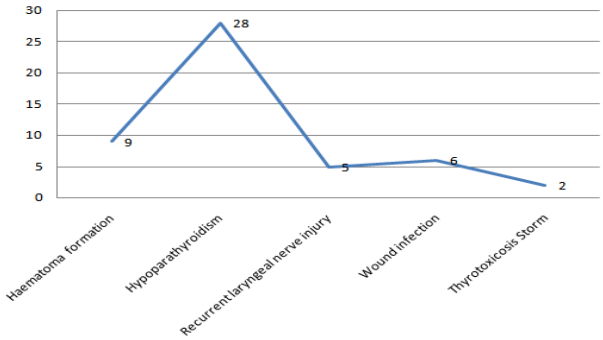

Figure No.2: Early Postoperative Complications

DISCUSSION

Thyroid diseases are common worldwide and the surgery of thyroid gland is one of the frequent operations. First recorded thyroidectomy was performed by Albucasis in AD 500 in Baghdad [8].

Goiter is a major problem in Pakistan, especially in the Northern mountaineous areas, where it is endemic. In Pakistan goitre belt extends from Hazara upto Gilgit and Skardu [9]. The word goitre is used to describe enlarged thyroid gland [10].

In our study sex ratio showed predominance of women. Out of 100 patients 84% were females and only 16% were males. Male to female ratio was 1:5.2..However the male to female ratio given by Alimoglu O[11] was 1:6.7.

The age ranged from 10 to 50 years with mean age of 31.78 years. The peak age group in our study were 2nd and 3rd decade of life which is comparable to other study where peak incidence was in the 3rd decade of Life [12] .However Rugiu MG showed age range from 35 to 85 year with a mean age of 64 years [13] .

The clinical parameters were further supported .Goiter was the main presentation in 99% of patients with multinodular goiter in 59%, solitary nodule in 30% and thyroid cancer in 4% that is supported by available literature [14].

Surgery was also performed in those cases of goitre, where goitre was large in size & there was failure of medical treatment. Preoperatively all patients were administered carbimazole, propranolol and Lugol's iodine as is described in the literature[15].In our study the commonest procedure performed was subtotal thyroidectomy (62%). This is also supported by other studies [16].Though the current trend is to perform near-total or total thyroidectomy [17]. In our study subtotal thyroidectomy was done in 62% of patients and lobectomy with isthmusectomy in 10 patients (10%) . In 4 cases (05.88%) of solitary hyper functioning nodules, lobectomy along with isthmusectomy was done by Sikandar's technique which is most appropriate for these types of cases [18].

In our study postoperative complication was haematoma formation in 9% cases. The incidence of postoperative hematoma reported in the literature ranges from 0% to 30% [19]. Hematomas can result from inadequate hemostasis at the time of closure or increased venous pressure at extubation because of coughing or straining. Neither the use of drains nor bulky pressure dressings prevents hematoma formation. Pressure dressings do not halt the development of a hematoma and may actually obscure early identification of hematoma in the postoperative period. We usually do not use pressure dressings after thyroidectomy. Early intervention is key to the management of postoperative hematoma. Most hematomas are clinically apparent within 2 to 4 hours after surgery [20]. It must be considered that complications caused by postoperative bleeding after thyroidectomy, which might produce respiratory failure, cannot be prevented by using a drain without meticulous hemostasis. Many authors have demonstrated that drainage after uncomplicated thyroid surgery, including total thyroidectomy, lobectomy, and subtotal thyroidectomy, does not decrease the rate of complications related to postoperative bleeding [21].

In the present study we had 3% case of hypoparathyroidism. postoperative hypocalcemia and sometimes the most severe complication observed after near total thyroidectomy. The reasons for postoperative hypoparathyroidism are devascularization of parathyroid glands during surgery owing to the close proximity of the thyroid capsule, the accidental removal of one or more parathyroid glands, destruction of the parathyroid glands as a result of lymphadenectomy along the recurrent laryngeal nerve (RLN), or hypoparathyroidism due to hematoma formation. However 25% incidence of hypoparathyroidism given by Asari R [22] in a series of 170 patients treated with total thyroidectomy.

In our study laryngeal nerve injury was seen in 5% cases . The exact incidence of recurrent laryngeal nerve injury is unknown [23]. Different studies have reported incidence of permanent injury to RLN ranges from 0% to 5.2% and for temporary injury from 0.4% to 7.2% [24,25].

The wound infection observed in 6% cases. Post thyroidectomy infection may manifest as superficial cellulitis. In our study observed cellulitis typically presented with erythema, warmth and tenderness of neck skin around the incision and Treated cellulitis with antibiotics and good coverage against gram-positive organisms (eg, against staphylococci and streptococci). However frequency of wound infection given by Guraya SY [26] was 3.6%.

Thyrotoxic storm is an unusual complication of thyroid surgery. This condition may result from manipulation of the thyroid gland during surgery in the patients with hyperthyroidism. It can develop preoperatively, intraoperatively, or postoperatively. In our study thyrotoxic storm was observed in 2% cases and signs of thyrotoxic storm were observed in the anesthetized patient include evidence of increased sympathetic output, such as tachycardia and hyperthermia. Some signs observed in the awake patient include nausea, tremor and altered mental status. However the frequency thyrotoxic storm given by Clech GL [27] is 1%.

CONCLUSION

We conclude that patients who undergo thyroidectomy an increased risk of developing postoperative hypoparathyroidism. Despite the fact that total thyroidectomy is a more involved procedure that exposes more parathyroid glands and recurrent

laryngeal nerves to surgical risk than unilateral thyroid lobectomy, it is an inherently safe procedure.

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