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Surgical Outcome of Thyroidectomy- A Study in Tertiary Care Hospital, Bangladesh

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Abstract **Original Research Article**

Background: Thyroidectomy is a common surgical procedure which has well known complications and hypocalcemia is an important complication encountered commonly. Thyroid swelling is one of the most common complaint of patients presenting to the Otolaryngology-Head and Neck surgery OPD. Depending on the diagnosis, while some of the patients are started on medical treatment, some patients undergo surgical treatment. ***Aim and Objective:*** To study the Surgical Outcome of Thyroidectomy Patients. ***Material and Method:*** The study material consisted of 100 patients with thyroid swelling who underwent elective thyroidectomy at Dept. of Otolaryngology-Head and Neck Surgery, Combined Military Hospital, Dhaka Cantonment, Bangladesh from 15th November 2017 to 14th November 2019. A detailed history was taken from all the patients. A thorough clinical examination along with examination of other systems was performed. Apart from routine laboratory tests, serum calcium, electrolyte, thyroid profile, FNAC, indirect laryngoscopy, ECG, Echo, X-ray Chest & Neck and USG of Neck & Abdomen were performed. ***Results*:** In this study the various postoperative complications following thyroid surgeries which occurred in 100 patients in the Dept. of Otolaryngology-Head and Neck Surgery, Combined Military Hospital, Dhaka Cantonment were analyzed. Patients between 20 to 60 years were included in this study. Youngest patient was 22 years old and oldest patient was 55 years old. While 81 patients in this study presented with complaint of swelling in the neck, 19 patients presented with swelling in the neck associated with pain. Total thyroidectomy outcome was the most common surgery done with 20.63% incidence of complications. The highest incidence of complications, 50% was noted with total thyroidectomy + MRND which was 50% done for papillary carcinoma. Transient hypocalcemia was the most common complication noticed in this study with incidence of 12%. Patients who developed hypocalcemia became normocalcemic around 2 months after surgery. ***Conclusion:*** It can be concluded that a good understanding of thyroid gland anatomy, improved techniques in hemostasis, RLN dissection, preservation of parathyroid glands and postoperative monitoring have caused steady decline in the incidence of postoperative complications following thyroidectomy.

Keywords: Hypocalcaemia, Post-operative complications, Thyroidectomy.

INTRODUCTION

Total thyroidectomy is a common surgical procedure which has well known complications and hypocalcemia is an important complication encountered commonly. Hypocalcemia is one of the serious complication of thyroid surgery especially total thyroidectomy. Incidence of hypocalcemia ranges from 2-30% [1]. Occurrence of post thyroidectomy hypocalcemia is commonly seen several days after total thyroidectomy. This delay will challenge many clinician to monitor serum calcium level periodically. Thyroid disorders are one of the most common cause of metabolic disturbances, with surgery forming the main stay of treatment of thyroid swellings. Thyroid surgery in the hands of experienced surgeons is currently one of the safest procedures performed. In the past the mortality rate after total thyroidectomy was as high as 35-40% [2]. Significant morbidity after total thyroidectomy is 3-4% [2]. The early complications of

total thyroidectomy are haemorrhage with tracheal compression, airway compromise and even death. Incidence of early hemorrhage is 1-2% [3]. Respiratory embracement can occur because of vocal cord paralysis (or) laryngeal edema. Incidence of life threatening respiratory obstruction occurs in about 0.5-1% [3], and it occur in immediate postoperative day. Incidence of hypocalcemia ranges from 2-30% [1]. Respiratory embracement can occur because of vocal cord paralysis (or) laryngeal edema. Incidence of life threatening respiratory obstruction occurs in about 0.5-1% [4], While complications following thyroidectomy are rare, their consequences can often be debilitating and even life threatening when they occur. The major complications include postoperative hemorrhage, wound infection, hypocalcaemia, respiratory obstruction, thyroid storm, hypoparathyroidism and laryngeal nerve injuries. This study intends to assess the occurrence of various postoperative complications following different thyroidectomy procedures and the role of adequate preoperative patient preparation, careful and meticulous surgical technique and early recognition of postoperative complications with the prompt institution of treatment in reducing morbidity and providing the patient with the best chance of a satisfactory outcome.

MATERIAL AND METHODOLOGY

The study material consisted of 100 patients with thyroid swelling who underwent elective thyroidectomy at Department of Otolaryngology-Head and Neck Surgery, Combined Military Hospital, Dhaka Cantonment, Bangladesh from 15th November 2017 to 14th November 2019. A detailed history was taken from all the patients. A thorough clinical examination along with examination of other systems was performed. Apart from routine laboratory tests, serum calcium, electrolyte, thyroid profile, FNAC, indirect laryngoscopy, ECG, Echo, Xray Chest & Neck and USG of Neck & Abdomen were performed. Patients who were fit to undergo surgery were included in the study. Patients were monitored from time of admission till their 10th postoperative day. The operated specimen was sent for histopathological examination. The different types of surgeries performed were total thyroidectomy, total thyroidectomy with parathyroid autotransplantation, subtotal thyroidectomy, hemithyroidectomy and Dunhill procedure.

OBSERVATIONS AND RESULTS

In this study the various postoperative complications following thyroid surgeries which occurred in 100 patients in the Department of Otolaryngology-Head and Neck Surgery, Combined Military Hospital, Dhaka Cantonment were analyzed. Patients between 20 to 60 years were included in this study. Youngest patient was 22 years old and oldest patient was 55 years old. While 81 patients in this study presented with complaint of swelling in the neck, 19 patients presented with swelling in the neck associated with pain.

Table-1: Age Wise Incidence of Complications (N=100)

Age Group in Years	No. of Cases	No. of Cases with Complications	Percentage
20–30	10	02	20%
30–40	60	15	25%
40–50	15	02	13.33%
50–60	15	01	6.66%
Total	100	20	20%

Shows in most of the patients in this study were in their 4th decade of life and so the complications were also more in this age group. The total incidence of complications was 20% (Table-1).

Table-2: Sex Wise Incidence of Complications (N=100)

Sex of Patient	No. Of Cases	No. Of Cases with Complications	Percentage
Male	10	03	30%
Female	90	17	18.9%
Total	100	20	

Shows in this study while 30% of the male patients who underwent surgery experienced complications, 18.9% of the female patients experienced complications (Table-2).

Table-3: Incidence of Complications with reference to Histopathological Diagnosis (N=100)

Histopathological Diagnosis	No. of Cases	No. of Patients with Complications	Percentage
Multinodular Goitre	64	13	20.31%
Diffuse Colloidal Goitre	03	02	66.66%
Hashimoto's Thyroiditis	04	01	25%
Solitary Thyroid Nodule	16	03	18.75%
Papillary Carcinoma	08	01	12.5%
Follicular Carcinoma	05	Nil	Nil
Total	100	20	20%

In this study, the highest incidence of complications was noted in patients with diffuse colloid goitre (66.66%) and lowest incidence was noted in patients with papillary carcinoma (12.5%) shows (Table-3). The most common histopathological diagnosis was multinodular goitre. The operative procedures performed depended on the preoperative diagnosis. The various procedures performed and the incidence of complications is as follows:

Table-4: Incidence of Complications with reference to the type of Thyroidectomy (N=100)

Type of Thyroidectomy	No. of Cases	No. of Cases with Complications	Percentage
Total Thyroidectomy	63	13	20.63%
Total Thyroidectomy + MRND	02	01	50%
Subtotal Thyroidectomy	18	03	16.66%
R/L Hemithyroidectomy	16	03	18.75%
Dunhill Procedure	01	Nil	Nil
Total	100	20	20%

Total thyroidectomy was the most common surgery done with 20.63% incidence of complications. The highest incidence of complications i.e., 50% was noted with total thyroidectomy + MRND which was 50% done for papillary carcinoma (Table-4).

Table-5: Post-Operative outcome and their Incidence (N=100)

Post-Operative Complication	No. of Cases	Percentage
Transient Hypocalcemia	12	12%
Transient RLN Palsy	06	6%
Airway Obstruction	02	2%
Total	20	20%

Though there are several outcome of thyroid surgery, in this study only transient hypocalcemia, transient RLN palsy and airway obstruction were noted which were effectively managed with calcium supplementation, steroid therapy and temporary tracheostomy. Transient hypocalcemia was the most common complication noticed in this study with incidence of 12% (Table-5). Patients who developed hypocalcemia became normocalcemic around 2 months after surgery. Temporary RLN palsy and airway obstruction were managed with temporary tracheostomy. Patients who had temporary RLN palsy and airway obstruction recovered within 3 months period.

DISCUSSION

In this study, 100 patients who underwent various thyroid surgeries were studied to analyze the occurrence of different early postoperative complications. The youngest patient was 22 years old and oldest patient was 55 years old. Maximum no. of complications occurred in the 30-40 years age group i.e., 25% and the lowest incidence of complications i.e., 6.66% was noticed in 50-60 years age group. The male: female ratio of cases was 1:9. Incidence of complications was 30% in males are 18.9% in females. The most common indication for surgery was multinodular goitre in 64% of cases and most common surgery performed was total thyroidecotomy in 63% of cases. The total incidence of complications was 20% and the most common complication was transient hypocalcemia in this study i.e., with incidence of 12% which correlates well with the study of Richmond *et al*., [5] who noticed an incidence of 13%. Transient RLN palsy which was noticed in 6 patients with incidence of 6% is more when compared to the studies of Chow *et al*., [6] who noticed an incidence of 2%. Other complications like wound infection, wound hematoma and thyroid storm were not seen in this study similar to the studies of Steurer *et al.*, [7] and Erbil *et al.*, [8]. Though there are several outcome of thyroid surgery, in this study only transient hypocalcemia, transient RLN palsy and airway obstruction were noted which were effectively managed with calcium supplementation, steroid therapy and temporary tracheostomy. Transient hypocalcemia was the most common complication noticed in this study with incidence of 12%. Tovi *et al*., [9] reported 4 cases of symptomatic hypocalcemia in 100 patients with malignant thyroid problem followed up for 1 year. Lymph node dissection had done in three patients in addition to total thyroidectomy. There was a relationship between drain insertion and postoperative pain and an approximate 40-55% pain reduction were noted without using drain [10]. These results indicate that drain insertion is associated with higher levels of postoperative discomfort and morbidity due to increased pain. A study done by Morrissey *et al*., demonstrated that thyroid surgery without the use of a drain decrease hospital stay by 3-4 days and producing early mobility [11]. Patients who developed hypocalcemia became normocalcemic around 2 months after surgery. Temporary RLN palsy and airway obstruction were managed with temporary tracheostomy. Patients who had temporary RLN palsy and airway obstruction recovered within 3 months period. The highest incidence of complications was seen with total thyroidectomy and in multinodular

goitre. All the patients with complications were effectively managed and they recovered completely within 3 months period.

CONCLUSION

It can be concluded that a good understanding of thyroid gland anatomy, improved techniques in hemostasis, RLN dissection, preservation of parathyroid glands and postoperative monitoring have caused steady decline in the incidence of postoperative complications following thyroidectomy. In addition appropriate postoperative care with early identification of complications and prompt institution of corrective treatment plays an important role in reducing the duration of postoperative hospital stay and limiting patient morbidity.

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