



A STUDY OF POST OPERATIVE COMPLICATIONS OF THYROID SURGERY PRESENTING IN A TERTIARY CARE HOSPITAL

General Surgery

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ABSTRACT

Background: To study the frequency of postoperative complications after thyroid surgery indicated for various benign and malignant lesions and to corroborate the results in relation to the extent of surgery and a clinical overview of evolution of thyroid surgery. **Method:** From January 2023 to December 2023, this analytical study was carried out in the surgery department of a tertiary care teaching hospital. Data were collected from 80 patients who underwent thyroidectomies for various thyroid diseases at this center. **Result:** Hemithyroidectomy, isthmectomy, subtotal, near-total, and total thyroidectomies were performed in 36 (45%), 6 (7.5%), 8 (10%), 10 (12.5%), and 20 (25%) cases respectively. The overall postoperative complication rate was 20%. Postoperative hypocalcaemia and recurrent laryngeal nerve injury were the most common complications. Permanent hypocalcaemia and permanent recurrent laryngeal nerve injury were observed in 3.75 and 2.5% of all operated cases respectively. The fewer common complications were wound hematoma, seroma formation, and superior laryngeal nerve injury. There was no mortality observed in our series. **Conclusions:** The overall complication rate can be minimized by operating in a bloodless field, doing a meticulous dissection, and correctly identifying and preserving recurrent and superior laryngeal nerves along with parathyroid glands, if feasible.

KEYWORDS

Hypocalcaemia; Hypoparathyroidism; Hypothyroidism; Recurrent laryngeal nerve injury; Superior laryngeal nerve injury (SLNI); Thyroidectomy.

INTRODUCTION

Thyroid disorders are one of the most common causes 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. 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, hypocalcemia, respiratory obstruction, thyroid storm, hypoparathyroidism and laryngeal nerve injuries. Disorders of the thyroid gland count as the second most common endocrine disorders trailing diabetes mellitus¹. Thyroid disorders warranting surgical intervention can be either benign tumours or malignant ones. Another reason for thyroid surgery is the swelling or enlargement of thyroid in the form of nodular or colloid goitre, when enlarged, causing difficulties in breathing, voice production, and swallowing. Thyroidectomy is also indicated in cases where an enlarged thyroid gland exhibits toxic symptoms, or where there is a high index of suspicion of malignancy, albeit cosmesis is the most common indication². The type of thyroidectomy is contingent upon the benign or malignant features of lesion, size of the lesion, and degree of impairment³. During the eighteenth century, the mortality rate of thyroid surgery was as high as 40% from haemorrhage and sepsis.⁴ The advent of modern antiseptic, anaesthetic facilities and improved surgical techniques along with better haemostatic and surgical instrumentation during the last century has tremendously contributed to the very low morbidity and mortality rates of modern thyroid surgery. Major postoperative complications of thyroid surgeries include wound infection, hematoma/ haemorrhage causing airway compromise, hypocalcaemia, recurrent or superior laryngeal nerve injury, and thyroid storm. Precise knowledge of the intricate anatomic details and meticulous surgical technique are prerequisite determinants for successful outcomes and to keep complications within acceptable limits. Ramirez et al⁵ asserted that complications accompanying thyroid surgery are directly proportional to the extent of thyroidectomy and inversely proportional to the surgeon's experience. 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.

Aim Of The Study

The study aims to investigate and manage postoperative problems associated with thyroid surgery.

MATERIALS AND METHODS

The study included 100 patients with thyroid enlargement who underwent elective thyroidectomy at the Department of General

Surgery at IGIMS medical college and Hospital. All patients were asked to provide a full history. A complete clinical examination and assessment of other systems were carried out. In addition to regular lab tests, the patient underwent serum calcium, electrolyte, thyroid profile, FNAC, indirect laryngoscopy, ECG, Echo, Xray Chest & Neck, and USG Neck & Abdomen. The study included patients who refused surgery. Patients were observed from the time they were admitted until three months after surgery. The surgical specimen was sent for histological investigation. The surgeries done included total thyroidectomy, total thyroidectomy with parathyroid auto transplantation, subtotal thyroidectomy, hemithyroidectomy, and the Dunhill technique.

OBSERVATIONS AND RESULTS

In this study the various postoperative complications following Thyroid procedures on 100 patients in the Department of General Surgery at IGIMS medical college and Hospital were examined. Patients aged 20 to 60 were enrolled in this study. The youngest patient was 22 years old, while the oldest patient was 55. While 81 participants in this study complained of neck oedema, 19 reported necks swelling with pain.

Table 1 Age Wise Incidence Of Complications

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%

The majority of the patients in this study were in their fourth decade of life, and so the problems were higher in this age group. The overall incidence of problems was 20%.

Table 2 Sex Wise Incidence Of Complications

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

In this study, problems were reported by 30% of male patients who underwent surgery and 18.9% of female patients.

Table 3 Incidence Of Complications With Reference To Histopathological Diagnosis

Histopathological Diagnosis	No. Of Cases	No. Of Cases 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, patients with diffuse colloid goitre had the highest incidence of complications (66.66%), whereas those with papillary carcinoma had the lowest incidence (12.5%). The most prevalent histological diagnosis was multinodular goitre. The preoperative diagnosis determined which operating procedures were undertaken. The numerous operations carried out and the prevalence of complications are as follows.

Table 4 Incidence Of Complications With Reference To The Type Of Thyroidectomy

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 performed, with a 20.63% chance of complications. The highest rate of complications, 50%, was observed with complete thyroidectomy + MRND for papillary cancer.

Table 5 Post Operative Complications And Their Incidence

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

Though thyroid surgery can cause a variety of problems, only transient hypocalcemia, transient RLN palsy, and airway obstruction were observed in this study and were successfully treated with calcium supplementation, steroid medication, and a temporary tracheostomy. The most prevalent consequence observed in this study was transient hypocalcemia, which had a 12% incidence rate. Patients with hypocalcemia became normocalcemic about two months following surgery. A temporary tracheostomy was performed to treat RLN palsy and airway blockage. Patients with transient RLN palsy and airway blockage healed after three months.

DISCUSSION

In this study, 100 patients who underwent various thyroid operations were examined to determine the frequency of various early postoperative problems. The youngest patient was 22 years old, while the oldest patient was 55. The highest number of complications occurred in the 30-40 age range (25%), while the lowest prevalence of complications (6.66%) was observed in the 50-60 age group.

The male : female ratio of cases was 1:9. Incidence of complications was 30% in males and 18.9% in females. The most common indication for surgery was multinodular goitre in 64% of cases and most common surgery performed was total thyroidectomy in 63% of cases. The total incidence of complications was 20% and the most common complication was transient hypocalcaemia in this study i.e., with incidence of 12% which correlates well with the study of Richmond et al [1] who noticed a 13% occurrence. Transient RLN palsy was observed in 6 patients at a rate of 6%, which is higher than the 2% observed in the investigations of Chow et al. [2]. Other problems such as wound infection, wound hematoma, and thyroid storm were not observed in this study, which is consistent with the findings of Steurer et al. [3] and Erbil et al. [4]. Complications were most common after complete thyroidectomy and multinodular goitre. All patients with problems were successfully handled, and they recovered entirely within three months.

CONCLUSION

This study was conducted to evaluate the outcomes of various thyroid operations performed on 100 patients admitted to the surgical wards of IGIMS medical college and Hospital. The only three problems

reported in these 100 individuals were transitory hypocalcemia (12), temporary RLN palsy (6), and airway obstruction (2). All of the issues were transient and were adequately controlled, and the patients fully recovered within three months. There were no cases of permanent laryngeal nerve paralysis in our investigation. Other problems, such as wound infection, hematoma, haemorrhage, and thyroid storm, were not observed in our study. It may be concluded that a thorough grasp of thyroid gland architecture, improved procedures in hemostasis, RLN dissection, parathyroid gland preservation, and postoperative surveillance have resulted in a consistent decrease in the occurrence of postoperative problems following thyroidectomy. Early detection of problems and rapid remedial treatment are crucial for decreasing postoperative hospital stay and minimising patient morbidity.

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