Section: Surgery

Original Research Article

ANALYSIS OF POST-OPERATIVE COMPLICATIONS IN THYROID SURGERY PATIENTS: AN INSTITUTIONAL BASED STUDY

Keshur J. Varu[1], Vatsal P. Gondaliya[2], Paritosh Dilipbhai Parmar[3], Chetan M. Savani[4]

[1]Assistant Professor, Department of Surgery, GMERS Medical College & Hospital, Junagadh, Gujarat, India.
[2]Assistant Professor, Department of ENT, GMERS Medical College & Hospital, Junagadh, Gujarat, India.
[3]Associate Professor, Department of Anaesthesia, Shantabaa Medical College & General Hospital, Amreli, Gujarat, India.
[4]Associate Professor, Department of Surgery, School of Medical Sciences, Sri Satya Sai University of Technology and Medical Sciences, Sehore, Madhya Pradesh, India.

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Corresponding Author:
Dr. Chetan M. Savani,
Email: dr.chetansavani@gmail.com.

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Abstract

Background: Thyroid disorders are prevalent among endocrine diseases, often necessitating surgical resection of the thyroid gland for treatment. Thyroidectomy is commonly recommended for benign conditions like large symptomatic goiters and for managing malignant thyroid diseases. The primary objective of this study is to identify and analyze the complications as well as specific variables linked to thyroid surgery. **Materials and Methods:** The study was analysis conducted at a tertiary care hospital focusing on 100 post-operative thyroid surgery patients. The findings aimed to provide insights into post-thyroidectomy complications and associated risk factors. Data analysis was done using SPSS software. **Results:** The most prevalent complications were dysphagia at 35%, followed by temporary voice change at 18%, wound infection at 11%, hypocalcemia at 8%, tracheal injury at 5%, keloid formation at 3%, and haemorrhage at 1%. **Conclusion:** Among the cohort of patients analyzed, dysphagia and voice change emerged as the predominant post-thyroidectomy complications, whereas hypocalcemia, tracheal injury, and hematoma were less frequently encountered.

INTRODUCTION

Thyroid disorders are prevalent among endocrine diseases, often necessitating surgical resection of the thyroid gland for treatment.[1] Thyroidectomy is commonly recommended for benign conditions like large symptomatic goiters and for managing malignant thyroid diseases.[2]

Despite its efficacy, thyroidectomy carries potential complications. Major postoperative issues include hypocalcemia, wound infection, hematoma, recurrent laryngeal nerve (RLN) injury, and Horner's syndrome.[3,4] Hypocalcemia, a significant complication, can lead to severe symptoms and prolonged hospital stays. Hypoparathyroidism, often responsible for hypocalcemia, typically results from inadvertent gland injury, removal, or blood supply interruption.[5] RLN injury commonly causes hoarseness and vocal cord dysfunction, impacting the patient's quality of life and necessitating long-term therapeutic interventions.[6,7]

Complications associated with thyroidectomy are influenced by factors such as the type and extent of the disease, surgical approaches, as well as the surgeon's training and experience. The primary objective of this study is to identify and analyze the complications as well as specific variables linked to thyroid surgery.

MATERIALS AND METHODS

The study was a retrospective cross-sectional analysis conducted at a tertiary care hospital focusing on 100 post-operative thyroid surgery patients. Using convenience sampling, data were extracted from the patients' medical records to investigate risk factors for post-thyroidectomy complications. The study excluded patients with chronic kidney disease, pre-operative hypoparathyroidism, and a history of dysphonia and recurrent thyroid surgery. The findings aimed to provide insights into post-thyroidectomy complications and associated risk factors. Data analysis was done using SSPS software.

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RESULTS

The most prevalent complications were dysphagia at 35%, followed by temporary voice change at 18%, wound infection at 11%, hypocalcemia at 8%, tracheal injury at 5%, keloid formation at 3%, and haemorrhage at 1%. The analysis in Table 3 explored the relationship between different types of surgeries—total thyroidectomy, hemithyroidectomy, isthmusectomy, and total thyroidectomy with modified radical neck dissection (MRND)—and the occurrence of post-operative complications. Significant associations were observed for Hemithyroidectomy and total thyroidectomy, indicating varied complication rates across these surgical categories. Conversely, isthmusectomy and total thyroidectomy with MRND did not show significant associations with post-operative complications.

Table 1: Frequency of post-thyroidectomy complications

Complication	Percentage (%)
Dysphagia	35
Temporary voice change	18
Wound infection	11
Hypocalcemia	8
Tracheal injury	5
Keloid formation	3
Hemorrhage	1

Table 2: Association of Complication Status with Health-Seeking Behavior in Post-Thyroidectomy Patients (n=60)

Health seeking behavior	Complication present	Complication absent	P value
Delay > 10 days	12	2	0.00*
10 days- 30 days	27	11	0.01*
>30 days	7	1	0.03*

***: Significant**

Table 3: Association of types of surgery performed with complications

Management	Complication present (n=46)	Complication absent (n=54)	P value
Total thyroidectomy	9	1	0.00*
Hemithyroidectomy	32	12	0.02*
Isthmusectomy	4	1	0.75
Total thyroidectomy + MRND	1	0	0.99

DISCUSSION

Thyroid surgery, with total thyroidectomy being the most common procedure in endocrine surgery, is employed for the treatment of both benign and malignant thyroid conditions. While the overall mortality rate for this operation is low, the occurrence of post-operative complications remains a significant concern.[8,9] The most notable complications include hypoparathyroidism, dysphagia, recurrent laryngeal nerve injury, temporary voice change, hypocalcemia and wound infection, all of which can notably impact patients' quality of life and contribute to increased healthcare costs.

In our study, we observed that the most common complications identified were dysphagia, affecting 35% of patients, followed by temporary voice change at 18%, wound infection at 11%, hypocalcemia at 8%, tracheal injury at 5%, keloid formation at 3%, and hemorrhage at 1%. These findings underscore the importance of monitoring and addressing these prevalent complications in patients undergoing thyroid surgery. In a study conducted by Alqahtani et al. in 2021,[10] temporary hypocalcemia was observed in patients post-operatively, while very less patients experienced persistent hypocalcemia. Pandey AK et al studied the frequency of postoperative complications after thyroid surgery indicated for various benign and malignant lesions. Data were collected from 80 patients who underwent thyroidectomies for various thyroid diseases at this center. Hemithyroidectomy, isthmusectomy, subtotal, neartotal, 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 hypocalcemia and recurrent laryngeal nerve injury were the most common complications. Permanent hypocalcemia and permanent recurrent laryngeal nerve injury were observed in 3.75 and 2.5% of all operated cases respectively. The less common complications were wound hematoma, seroma formation, and superior laryngeal nerve injury. There was no mortality observed in our series. 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.[11]

Mishra T et al identified the complications and selected variables associated with thyroid surgery. Of the 107 patients who underwent thyroidectomies, 92 (85.9%) reported one or more complications. Complications were most common (90.2% of patients) in the 25-34 years age group and among females (83.3%). The most common complications

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were dysphagia (30.84% of patients), voice change (21.50%), and respiratory obstruction (8.41%). Temporary hypocalcemia developed in 3.74% of these patients, while tracheal injury and hematoma were documented in 3.74% and 1.87%, respectively. Tobacco users (14.9%), alcohol users (16.8%), those eating a non-vegetarian diet (61.9%), and those eating saturated fats (13.0%) suffered more complications. Family history (p=0.03) was found to be significantly associated with complications.[12]

CONCLUSION

In conclusion, among the cohort of patients analyzed, dysphagia and voice change emerged as the predominant post-thyroidectomy complications, whereas hypocalcemia, tracheal injury, and hematoma were less frequently encountered.

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