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An Overview of Thyroid Surgery Complication Profile

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ABSTRACT

Background: Thyroid gland disorders are among the most common endocrine diseases worldwide, with various benign and malignant conditions often requiring surgical intervention. This study examines the Overview of Thyroid Surgery Complication Profile, ranging from hemithyroidectomy to total thyroidectomy, conducted at Rajendra institute of medical sciences.

Methods: A prospective analysis was performed on 50 patients who underwent thyroid surgery between Jan 2019 and Jan 2020. Exclusion criteria included anaplastic cancer, patients under 14, those declining surgery, and individuals unfit for general anesthesia. Preoperative assessments included thyroid function tests, fine needle aspiration cytology (FNAC), and ultrasound. Postoperative monitoring focused on complications such as hypoparathyroidism, recurrent laryngeal nerve injury, and hypothyroidism.

Results: The study comprised 45 female and 5 male patients. The majority presented with neck swelling lasting 6 months to 2 years. Most patients (98%) were euthyroid, and 72% underwent lobectomy. Complications during hospitalization included hypoparathyroidism (12%), transient recurrent laryngeal nerve palsy (8%), and wound infections (4%). Long-term complications involved hypoparathyroidism (18%) and hypothyroidism (22%). Two cases of initially benign nodules were later identified as papillary carcinoma.

Conclusion: The findings underscore the necessity of precise surgical techniques and comprehensive preoperative assessments to reduce complication rates in thyroid surgery. Long-term follow-up is crucial for managing hypothyroidism and hypoparathyroidism, emphasizing the need for continued research into optimizing surgical approaches and postoperative care.

KEYWORDS: Thyroid surgery, Hypoparathyroidism, Recurrent laryngeal nerve injury

INTRODUCTION;

Worldwide, diseases associated with the thyroid gland is one of the most common endocrine disorders. Various benign and malignant thyroid conditions are amenable to treatment by surgical intervention. These surgical procedures may range from hemithyroidectomy to subtotal, near-total, and total thyroidotomies. The choice of surgical procedure may depend on the type and extent of the disease [1,2].

Thyroid surgery problems are often classified as mild or significant. A minor issue consists of a bad scar and after surgery site seroma. Bleeding and damage are two possible main risks following thyroid surgery. damage to the superior laryngeal nerve, hypothyroidism, hypoparathyroidism, thyrotoxic shock, and recurrent laryngeal nerve contamination.

MATERIAL AND METHODS;

The current prospective study, An Overview of Thyroid Surgery Complication Profile was carried out in the surgery department of Rajendra institute of medical sciences, Bariatu Ranchi Jharkhand. The study comprised 50 individuals who underwent thyroid surgery in all its forms between Jan 2019 to Jan 2020. Patients with anaplastic cancer, those under the age of 14, those who declined surgery, those who did not provide consent to be included in the trial, and those who were deemed unfit for general anesthesia were all eliminated. Every other patient receiving various types of thyroid surgery was evaluated based on the study.

A thorough medical history was requested, encompassing symptoms that may indicate pressure symptoms such as dysphagia, dyspnea, and dysphonia. Thyroid status history, including hypo-, hyper-, or euthyroidism, as well as a thorough physical examination.

Thyroid profile, FNAC, and ultrasound were performed as diagnostic tests. Following the final diagnosis and assessment of surgical suitability, the necessary thyroid surgery was performed. Vocal cord movement was observed during anesthesia reversal, as reported by the anesthesiologist. Patients were monitored in the ward for signs of hypocalcemia, superior laryngeal nerve injury, recurrent laryngeal nerve injury, or any other complications such as thyroid storm in thyrotoxic patients.

Following release, follow-up revealed symptoms of hypothyroidism and hypocalcemia. The thyroid profile and serum Ca++ levels were regularly measured in these patients. Any developing complications were appropriately handled, and

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information about the management and ultimate result was documented. Any evidence of hypoparathyroidism and hypothyroidism was detected during follow-up, and routine serum
Thyroid profile and calcium were measured in serum. Extensive information was gathered and examined concerning multiple problems, tracking their resolution and results.

RESULTS AND OBSERVATIONS;

There were five male patients and forty-five female patients in the current study. The majority of patients (42%) reported having neck swelling that had lasted between six months and two years, with 30% reporting less than six months. Merely 12 percent developed edema that lasted longer than five years. Eleven patients had pressure symptoms such as dysphagia, five had dyspnea, and one had a change in voice. Biochemically, the majority of patients (98%), were euthyroid. Hypothyroidism was present in only one case. In the current dataset, 72% of patients had lobectomies, or the removal of the left or right lobe and isthmus, during a hemithyroidectomy. Ten patients (20%) had complete thyroidectomies, while four patients (4%) had Hartley's Dhunhill surgery. One person underwent a subtotal thyroidectomy, and another underwent a straightforward nodule excision.

Table 1; Complications following surgery while in the hospital

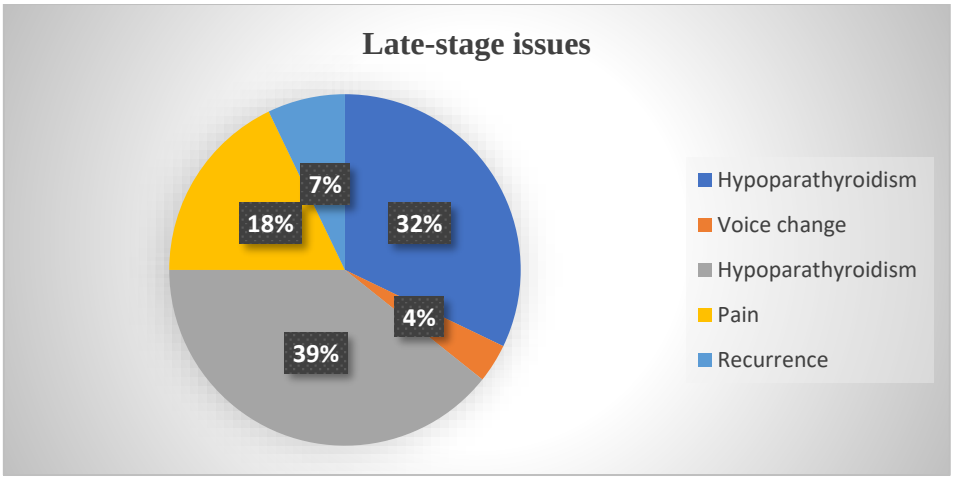
Complications	No. of patients	Percentage
Infection of wounds	2	4%
Seroma	2	4%
hypoparathyroidism	6	1 2%
hemorrhage	0	0%
temporary RLNs pale	4	8%
Permanent RLN Palsy	1	2%
hypothyroidism	1	2%
SLN injury:	1	2%
Edema from Wounds	2	4%
Apical Lung Injury	1	2%

In 12% of patients, hypoparathyroidism was found, and in 8% of instances, transient RLN. In addition to seroma and wound edema in the same number of patients, two cases (4%), had wound infections. One patient each had apical lung injury, SLN damage, and hypothyroidism. One patient needed a tracheostomy to address a permanent RLN injury.

Table 2; Late-stage issues (n=49)

Complication	No. of patients	Percentage
Hypoparathyroidism	9	18%
Voice change	1	2%
Hypothyroidism	11	22%
Pain	5	10%
Recurrence	2	4%

Following up, it was discovered that nine patients (18%) and eleven patients (22%) had hypothyroidism; patients with both of these complications needed long-term conservative treatment. It was also discovered that two patients who had initially presented with benign swelling had papillary carcinoma on histopathology, necessitating further action.



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DISCUSSION;

Thyroid surgery is a cornerstone treatment for managing various benign and malignant conditions of the thyroid gland, and while it is generally considered safe, complications can occur. This study aimed to elucidate the Overview of Thyroid Surgery Complication Profile in a cohort of 50 patients at Rajendra institute of medical sciences, providing insights into the frequency and nature of postoperative issues.

Complications Overview

The study's demographic composition, with a predominance of female patients (90%), is consistent with the higher prevalence of thyroid disorders among women, as documented in previous studies [3,4]. Most patients presented with neck swelling, aligning with known clinical presentations of thyroid pathology [5]. Interestingly, the majority were euthyroid, which is typical in patients undergoing surgical intervention for structural thyroid abnormalities rather than functional disorders [6].

Hypoparathyroidism

Hypoparathyroidism emerged as the most common complication, affecting 12% of patients during hospitalization and 18% during long-term follow-up. This condition typically results from inadvertent damage or removal of the parathyroid glands during thyroidectomy, underscoring the need for surgical precision and intraoperative identification of parathyroid tissue [7,8]. The rates observed are comparable to the 10-20% incidence of transient hypoparathyroidism reported in similar studies [9].

Nerve Injuries

Recurrent laryngeal nerve (RLN) injury is a significant concern, occurring as temporary palsy in 8% and permanent palsy in 2% of patients. These findings align with the established literature, which reports RLN injury rates of 5-10% for temporary and 1-2% for permanent palsy [10,11]. The use of intraoperative nerve monitoring has been shown to reduce these rates, highlighting its potential benefit in thyroid surgery [12]. Superior laryngeal nerve (SLN) injury was noted in one patient (2%), a complication that can impact vocal quality and necessitates careful dissection and anatomical awareness during surgery [13].

Hypothyroidism

Hypothyroidism was noted in 22% of patients postoperatively, a common and predictable outcome following total or near-total thyroidectomy due to the loss of thyroid hormone production capability [14]. This underscores the importance of routine postoperative thyroid function monitoring and the initiation of thyroid hormone replacement therapy when necessary [15].

Minor Complications

Minor complications such as seroma and wound infection occurred in 4% of patients each. These rates are consistent with previous reports and highlight the importance of meticulous surgical technique and postoperative care in minimizing such complications [16].

Voice Changes and Other Issues

Voice changes were reported in 2% of patients, potentially resulting from surgical trauma to the laryngeal nerves or alterations in vocal cord tension. This complication warrants thorough preoperative counseling and postoperative assessment by an otolaryngologist when necessary [17]. Postoperative pain, affecting 10% of patients, is a frequent complaint that can be effectively managed with appropriate analgesia and patient education [18].

Oncological Considerations

Of particular interest was the discovery of papillary carcinoma in two patients who were initially diagnosed with benign thyroid nodules. This finding emphasizes the importance of comprehensive histopathological evaluation of excised thyroid tissue, as the identification of malignancy may necessitate additional treatment and long-term follow-up [19].

Conclusion

The complication profile observed in this study highlights the importance of skilled surgical technique and comprehensive preoperative planning to mitigate risks. Future research could focus on refining surgical approaches, such as the incorporation of minimally invasive techniques and enhanced intraoperative monitoring, to further reduce complication rates. Additionally, continued postoperative monitoring is crucial to manage and mitigate the long-term effects of hypothyroidism and hypoparathyroidism in patients who have undergone thyroid surgery.

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