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INTRA- AND POSTOPERATIVE COMPLICATIONS IN 80 CASES OF GIANT THYROID GLAND TUMOUR

General Surgery

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ABSTRACT

Thyroid Surgery is commonly performed by the general surgeons throughout the world. It is indicated as elective treatment for thyroid neoplasm. During surgery injury to RLN is common complication. Damage to the RLN has been reported as most common iatrogenic complications associated with surgeries of the thyroid gland. Injury to the RLN is most frequent and important cause of morbidity in thyroidectomies. Today most of the complications of thyroid surgery are related to either metabolic derangement or injury to recurrent laryngeal nerve. Other complications include hypoparathyroidism, hematoma, seroma, infection at surgical site, superior laryngeal nerve palsy. Hence before any thyroid surgery patient must be precisely informed the possible complications and their remedies. The present study aims to evaluate intra operative and post operative complications in 80 cases of giant thyroid gland tumours.

KEYWORDS

INTRODUCTION:

In endocrine surgery, thyroidectomy is a routine and risk-free procedure with minimal death and morbidity rates. Thyroidectomy problems have decreased thanks to recent improvements in surgical methods and sterile procedures. The expertise of the surgeon is typically linked to thyroidectomy complications. 1 Toxic nodules, multinodular goitre, graves' disease, and cancer are the most frequent causes of thyroidectomy. 2 The most frequent side effects of complete thyroidectomy include temporary hypocalcaemia and recurrent laryngeal nerve palsy. The most common reason for emergency hospital admissions is post-operative hypocalcaemia, which can be addressed right away with an intravenous calcium infusion. The multifactorial post-operative hypoparathyroidism linked to thyroidectomy. It could be caused by particular surgical procedures, parathyroid gland resection, or vascular damage to the parathyroid gland. Graves disease, multinodular goitre, and thyroid cancer are thyroid disorders that are connected removing the parathyroid gland has a higher risk due to substantial surgical resection. 4 Due to the higher prevalence of goitre in iodine-deficient areas, thyroidectomy is one of the most common surgeries done there. 5 Areas lacking in iodine are also prone to recurrent goitre. Multiple procedures for recurring goitres can leave behind significant scarring, and treatment of the tissue damages the parathyroid gland and its supporting structures. Consequently, there is a relative risk of recurrent vascular and laryngeal nerve damage with multiple procedures. 6 In order to remove thyroid nodules, minimally invasive thyroid surgery has been initiated after reviewing the potential side effects of thyroidectomy. Although there haven't been any substantial studies on how beneficial minimally invasive surgery is. When the results of four specialist centres' studies of minimally invasive thyroid surgery were combined in 2002, it was discovered that it provides good cosmetic outcomes and decreased post-operative stress. 7 The incidence of recurrent laryngeal nerve palsy, a well-known side effect of thyroid surgery, is approximately 3.48%. 8 The incidence of other problems has decreased as a result of improvements in surgical and anaesthetic techniques, but the rate of RLN palsy has remained constant. Hoarseness of voice and difficulty swallowing are symptoms of RLN palsy. 9 With the aid of CT scan and MRI, further risks including bleeding, hematoma development, and wound infection can be minimised. 10 The likelihood of hematoma formation, a potentially fatal side effect of thyroid surgery, has decreased with time. It compromises the upper airways and results in abrupt death. Outpatient thyroidectomy is the single most significant risk factor, according to studies done on identifying risk factors for the development of hematomas.

Subjects and Methods:

1. Place of Study: Department of Surgery, Dr Vikhe Patil Medical College and Hospital, Ahmednagar
2. Type of Study: This was a randomized prospective study
3. Sample Collection: 80 Patients.
4. Sampling Methods: Consecutive sampling.

Inclusion Criteria:

- Patients admitted and positively diagnosed as having thyroid swellings requiring surgical management and willing for surgery.
- Patients who underwent thyroidectomy.
- Patients follow up for 1 year after discharge.

Exclusion Criteria:

- Thyroid swelling patients with an already damaged RLN detected by pre-operative IDL test
- Patients suffering from thyroidectomy due to chronic thyroid disease, concomitant dissection of the lymph node and hyperparathyroidism.
- Patients who have undergone thyroidectomy and have been unavailable for follow-up

MATERIALS AND METHODS:

The Dr. Vikhe Patil Medical College and Hospital in Ahmednagar, Maharashtra, is where this observational study was carried out in the department of surgery. between August 2020 and August 2022, a 24-month period. Patients who did not consent to surgery were eliminated from the study while those who had thyroid enlargement had undergone thyroidectomy were included. In addition to the standard haematological tests, thyroid profile (T3, T4, and TSH) and serum calcium measurements were made in all patients prior to surgery as well as 24 and 72 hours later. To assess the condition of the vocal cords and rule out any cord palsy both before and after surgery, indirect laryngoscopy was done. All patients underwent neck, chest, and neck X-rays as well as FNAC under ultrasound guidance.

The surgical procedures performed on the study participants included hemithyroidectomy, near total thyroidectomy, and total thyroidectomy. The choice of surgical procedure was based on the clinical, radiological, and cytological diagnosis of the goitre. Modified radical neck dissection was performed on patients who had nodal metastases, which were identified through imaging and cytology. Following thyroidectomy, histological analysis was performed on all thyroid specimens. When histology indicated cancer, a completion thyroidectomy was carried out following a hemithyroidectomy. Whenever the calcium values were less than 8.5 mg/dl, hypoparathyroidism was taken into account. When vocal cord palsy was observed during indirect laryngoscopy, recurrent laryngeal nerve (RLN) injury was diagnosed. Infection at the surgical site was characterised by discharge from the surgical site, an increase in local temperature, or discomfort there.

RESULTS:

Eighty patients who underwent various thyroid operations made up this case study. The gender ratio was 5.83:1, with 70 females (87.5%) and 10 males (12.5%), and the average age was 39.29 years. In 88.75 and 11.25% of cases, preoperative diagnoses of benign and malignant diseases, respectively, were made. Colloid goitre (multinodular goitre, MNG), which occurred in 47.5% of cases, was the most prevalent pathological diagnosis seen in our collection, whereas papillary carcinoma, which occurred in 8.75% of cases, was the most common malignant lesion (Table 1). Most cases manifested as blatant neck oedema. In one case, a patient presented with a giant goitre that required intubation and later underwent TT on this MNG pathology, while in another, a patient presented with a massive goitre that caused dysphagia but no distress and received uncomplicated thyroid surgery (Fig. 1). (Fig. 2). the following thyroid procedures were performed: (Table 2). Hemithyroidectomy was the most often performed procedure (45%). 20% of surgical complications were overall. The most frequent postoperative complications were found to be hypocalcaemia and recurrent laryngeal nerve injury (RLNI), each of which was detected in six patients (Table 3). 7.5% (six instances) of all operated cases experienced recurrent laryngeal nerve injuries, which accounted for 37.5% of all complications. No matter how severe they were, all of the injuries were solely unilateral. There were 5 and 2.5% occurrences of transient and persistent RLNI, respectively. In two cases, temporary palsy developed two to three weeks following surgery, and with speech therapy and conservative management, it was able to fully recover two months after treatment began. In two cases, permanent RLNI developed after benign disease was treated with TT in one patient and NTT in the other. Both times, end-to-end anastomosis was completed quickly after intraoperative RLN damage was discovered. Even though both cases laryngoscopic examinations after six months revealed light flashing, the change in voice quality was insignificant because speech therapy provided to both patients in the months following surgery. Patients who underwent surgery for malignant lesions did not experience any persistent RLNI instances. One example was thought to have an external branch lesion of the superior laryngeal nerve because the patient had endoscopic evidence of vocal fatigue and reduced voice tone. In 3.75% of instances, there was transient hypocalcaemia while in all cases, there was permanent hypocalcaemia. Sincere attempts were made to preserve at least two parathyroid glands in instances, particularly TT, NTT, and ST. One patient required a second surgery on the fifth postoperative day due to compressive symptoms and continued haemorrhage after developing a postoperative hematoma. Table 3 lists additional postoperative problems that were seen but were less frequent. Table 4 provides information on complications according to benign and malignant thyroid diseases. Temporary RLNI was the most frequent complication seen in the benign group, whereas permanent HPT was the most frequent complication seen in those operated for malignant tumours. Table 5 illustrates specifics of problems for various thyroid operations. In this study, there was no operative mortality noted. Nine thyroid cancer patients in all underwent surgery. The majority of cases were papillary cancer. The extent of the procedure included dissection of the central and lateral neck compartments, ranging from NTT to TT. Although only transient, tracheal instability was seen in a case of large MNG surgery, yet the patient needed a tracheostomy for a week before recovering successfully. In our study, wound infection following thyroid surgery was not noted. None of the subjects in our series had hyperthyroidism surgically treated. In our series, there was no postoperative mortality noted.

Table 1: Thyroid pathology observed in this study

PATHOLOGY		NUMBERS	PERCENTAGE
Colloid goitre		38	47
MNG		27	33
Cyst		02	2.3
Hyperplastic nodule		04	5
carcinoma	Papillary	07	8.7
	Follicular	02	2.5

Table 2: Complications seen in surgery done for malignant and benign lesions

COMPLICATIONS	SURGERY FOR MALIGNANT LESIONS	SURGERY FOR BENIGN LESIONS
Permanent RLNI		02
Temporary RLNI		04
Hematoma		01
SLN injury		01
Permanent HPT	03	
Temporary HPT	03	
Seroma		01
Tracheal instability		01

Table 3: Type of thyroid operation performed

TYPE OF OPERATION	NO. OF CASES	PERCENTAGE
Hemi thyroidectomy	36	46
Subtotal thyroidectomy	08	10.5
Total thyroidectomy	10	12
Total thyroidectomy	20	25
Isthmectomy	06	07

Table 4: Complications seen in different thyroid surgeries

	TT	NTT	STT	HT	IT
Permanent RLNP	01			01	
Temporary RLNP	02	01		01	
Permanent HPT	03				
Temporary HPT	03				
Hematoma				01	
Seroma			01		
Tracheal instability	01				
SLN injury	01				

CONCLUSION:

This research was done to examine how thyroid operations turned out. These 47 patients had only three problems, all of which were hypocalcemia. Laryngeal nerve palsy occurred in 2 patients and traumatic vocal cord paresis in 1 patient, among 6 patients. In this investigation, there were no cases of bilateral recurrent laryngeal nerve paralysis that were permanent. In our investigation, no further problems such wound infection, wound hematoma, or wound haemorrhage were identified. It may be said that the occurrence of complications was not influenced by the patient's age; rather, it was determined by the surgeon's experience, the kind of thyroidectomy, and the thyroid pathology.

The best way to avoid difficulties is through a thorough grasp of the architecture of the thyroid gland, improved hemostasis procedures, RLN dissection, preservation of the parathyroid glands, and postoperative surveillance. The length of the postoperative hospital stay morbidity is significantly reduced by appropriate postoperative care, early diagnosis of difficulties, and rapid initiation of corrective treatment.

REFERENCES

1. Spiliotis J, Vaxevanidou A, Sergouniotis F, Tsiveriotis K, Datsis A, Rogdakis A, et al. Risk factors and consequences of incidental parathyroidectomy during thyroidectomy. The American Surgeon. 2010; 76(4):436-41.
2. Perera M, Anabell L, Page D, Harding T, Gnaneswaran N, Chan S. Risk factors for post-thyroidectomy haematoma. The Journal of Laryngology & Otology. 2016; 130(S1):S20-S5.
3. Nahas ZS, Farrag TY, Lin FR, Belin RM, Tufano RP. A safe and cost.effective short hospital stay protocol to identify patients at low risk for the development of significant hypocalcemia after total thyroidectomy. The laryngoscope. 2006; 116(6):906-10.
4. Wingert DJ, Friesen SR, Iliopoulos JI, Pierce GE, Thomas JH, Hermreck AS. Post-thyroidectomy hypocalcemia: incidence and risk factors. The American journal of surgery. 1986; 152(6):606-10.
5. Karamanakos SN, Markou KB, Panagopoulos K, Karavias D, Vagianos CE, Scopa CD, et al. Complications and risk factors related to the extent of surgery in thyroidectomy. Results from 2,043 procedures. Hormones (Athens). 2010; 9(4):318-25.
6. Levin K. oark AH, Duh CY, Derneure M, siperstein AE, Clark OH. Reoperative thyroid surgery surgery. 1992; 111:604-9.
7. Miccoli P, Bellantone R, Mourad M, Walz M, Raffaelli M, Berti P. Minimally invasive video-assisted thyroidectomy: multiinstitutional experience. World journal of surgery. 2002; 26(8):972-5.
8. Cernea CR, Brandao LG, Hojaij FC, De Carlucci D, Montenegro FL, Plopper C, et al. How to minimize complications in thyroid surgery? Auris Nasus Larynx. 2010; 37(1):1-5.
9. Christou N, Mathonnet M. Complications after total thyroidectomy. Journal of visceral surgery. 2013; 150(4):249-56.
10. Puzziello A, Rosato L, Innaro N, Orlando G, Avenia N, Perigli G, et al. Hypocalcemia following thyroid surgery: incidence and risk factors. A longitudinal multicenter study comprising 2,631 patients.Endocrine. 2014; 47(2):537-42.
11. Inabnet WB, Shifrin A, Ahmed L, Sinha P. Safety of same day discharge in patients undergoing sutureless thyroidectomy: A comparison of local and general anesthesia. Thyroid. 2008; 18(1):57-61.
12. Kakkos SK, Scopa CD, Chalmoukis AK, Karachalios DA, Spiliotis JD, Harkoftakis JG, et al. Relative risk of cancer in sonographically detected thyroid nodules with calcifications. Journal of Clinical Ultrasound. 2000; 28(7):347-52.
13. Melliere D, Etienne G, Becquemin J-P. Operation for hyperthyroidism: Methods and rationale. The American journal of surgery. 1988; 155(3):395-9.
14. Ku CF, Lo CY, Chan WF, Kung AW, Lam KS. Total thyroidectomy replaces subtotal thyroidectomy as the preferred surgical treatment for Graves' disease. ANZ journal of surgery. 2005; 75(7):528-31.
15. Barakate MS, Agarwal G, Reeve TS, Barraclough B, Robinson B, Delbridge LW. Total

thyroidectomy is now the preferred option for the surgical management of Graves' disease. ANZ journal of surgery. 2002; 72(5):321-4.
16. Sosa JA, Bowman HM, Tielsch JM, Powe NR, Gordon TA, Udelsman R. The importance of surgeon experience for clinical and economic outcomes from thyroidectomy. Annals of surgery. 1998; 228(3):320.
17. Demeester-Mirkine N, Hooghe L, Van Geertruyden J, De Maertelaer V. Hypocalcemia after thyroidectomy. Archives of surgery. 1992; 127(7):854-8.
18. Chow T, Chu W, Lim B, Kwok S. Outcomes and complications of thyroid surgery: Retrospective study. Hong Kong medical journal Xianggang yi xue za zhi. 2001; 7(3):261-5.
19. Walsh SR, Kumar B, Coveney EC. Serum calcium slope predicts hypocalcaemia following thyroid surgery. International Journal of Surgery. 2007; 5(1):41-4.
20. Moriyama T, Yamashita H, Noguchi S, Takamatsu Y, Ogawa T, Watanabe S, et al. Intraoperative parathyroid hormone assay in patients with Graves' disease for prediction of postoperative tetany. World journal of surgery. 2005; 29(10):1282-7.
21. Sosa JA, Mehta PJ, Wang TS, Boudourakis L, Roman SA. A population-based study of outcomes from thyroidectomy in aging Americans: At what cost? Journal of the American College of Surgeons. 2008; 206(6):1097-105