

Original Article

Early and Late Complications after Thyroid Surgery: A Retrospective Study in 163 Patients

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Abstract:

Objective: The aim of this study was to evaluate the early and late (6 months after surgery) complications in patients undergoing thyroid surgery.

Material & methods: A retrospective study was done from January 2015 to December 2019 in the Department of ENT & Head Neck Surgery, Enam Medical College & Hospital. One hundred and sixty three patients with both benign & malignant thyroid disease underwent surgical treatment was selected for this study. Patients were followed up for six months and preoperative & postoperative complications were evaluated.

Results: Out of 163 patients 132(80.9%) cases were benign and 31(19.1%) cases were malignant. Total thyroidectomy was done in 71(43.56%) patients and hemithyroidectomy was done in 82(50.3%) patients and 10(6.13%) patients had other thyroid surgery. 29(17.80%) patients develop complications after thyroid surgery. Most common post operative complication was hypoparathyroidism with a incidence of 17(10.43%). 15(9.20%) patients developed temporary hypocalcaemia and 2(1.23%) patients developed permanent hypocalcaemia. Others complications were recurrent laryngeal nerve (RLN) palsy 2(1.23%), superior laryngeal nerve (SLN) palsy 3(1.84%), wound infection 2(1.23%), haematoma 1(0.61%) and hypertrophied scar 4(2.45%).

Conclusion: Hypocalcaemia was the most frequent post-thyroidectomy complication, while voice change, seroma, haematoma, wound infection and hypertrophied scar are additional complications. Surgeons have to pay attention to curtail the complications during thyroid surgery.

Key words: Thyroidectomy, hypocalcaemia, complications

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Introduction:

Among the endocrine illnesses thyroid gland related diseases are frequent.¹ Goitre, thyroiditis, benign and malignant neoplasm are common thyroid diseases. Surgical removal of the thyroid gland is frequently essential for the control of thyroid diseases.¹ Total, subtotal, near total or hemithyroidectomy is needed for benign and malignant neoplasm of the thyroid gland.²

Thyroid surgery have some potential complications. The common post operative complications are hypocalcaemia, wound

infection, hematoma, recurrent laryngeal nerve (RLN) injury.³⁻⁵ Hypocalcaemia is one of the common postoperative complications of thyroid surgery inflicting severe symptom as tetany.^{6,7} Hypocalcaemia results from accidental injury, removal of parathyroid gland or ligation of blood vessels supplying parathyroid glands.^{6,7} Hoarseness or change of voice is caused by recurrent laryngeal nerve injury during thyroid surgery.⁸ Patient's quality of life is influenced by the frequency of complications and increase the health-care costs.⁹ The surgery related Complications depends on the type and severity of disease, approach to the tumor, training and experience of the surgeon.¹⁰⁻¹³ Studies have shown that the postoperative complications of thyroid surgery are directly related with surgeon skill.^{10,14}

To the best of our knowledge, less information are found concerning the early and late complications of thyroid surgery in Bangladesh. The aim of this study was to find the incidence of early and late complications of thyroid surgery at Enam Medical College Hospital.

Materials and Methods:

A retrospective study was done from January 2015 to December 2019 in the Department of ENT & Head Neck Surgery, Enam Medical College & Hospital, Savar. 163 patients with both benign & malignant thyroid disease undergo surgical treatment was chosen for this study. All cases were diagnosed preoperatively by Fine Needle Aspiration Cytology (FNAC), ultrasonography of thyroid gland and established by postoperative histopathology report. The patients were examined primarily and the height, weight and blood pressure were measured and a general examination was done. Following thyroid surgery, the patients were examined for early on and late (6 months after thyroid surgery) complications of operation counting hypocalcaemia, hoarseness, dysphagia, haematoma, wound infection and hypertrophied scar. The findings were

recorded. Researcher himself was remain cautious on every aspect of the study starting from case selection, follow up, investigating patients, information sheet filling up and record keeping, data scrutiny, data entry, breakdown and report writing.

All patients with thyroid swelling and indication of surgery were included in this study.

Patients with preoperative hypocalcaemia, vocal cord palsy and history of previous thyroid surgery were excluded from the study.

Statistical analysis:

The collected information were analyzed with SPSS package (version 20) Quantitative data were expressed as mean \pm variance (SD) and qualitative data were according by frequency (%). The provision regression was applied to gauge the association of things cherish such as sex, age, body mass index (BMI), past medical history, form of surgery, indication of surgery, and skill of surgeon, with the incidence of surgical early and late complications. Thus, values for 95% confidence interval and odd magnitude relation were reported. For all analyses, the significance level was through of <0.05 .

Results:

From January 2015 to Dec 2019, 163 patients undergo thyroid surgery. There have been female 108(66%) and male 55(34%) (Figure 1). The age vary was 41.2 ± 13.4 years (table 1). Out of 163 patients 132(80.9%) cases were benign and 31(19.1%) cases were malignant. Among benign tumors 128(78.5%) cases were multinodular goitre, 2 cases were follicular adenoma and 2 cases were hashimoto's thyroiditis. In 31 malignant cases, papillary carcinoma was 24(78%), follicular carcinoma was 5(16%) and medullary carcinoma case was 2(6%) in number (Table 2). Total thyroidectomy was done in 71(43.56%) patients and hemithyroidectomy was done in 82(50.3%) patients and 10(6.13%) patients had different

thyroid surgery (Table 3). In this study 29 (17.80%) patients had complications after thyroid surgery and 134 (82.20%) had no complication (Fig.2). 15(9.20%) patients had transient hypocalcaemia and 02 (1.23%) patients had permanent hypocalcaemia. Other complications included RLN injury 2(1.23%), SLN injury 3(1.84%), wound infection 2(1.23%), hematoma 1(0.61%) and hypertrophic scars 4(2.45%) .(Table IV).

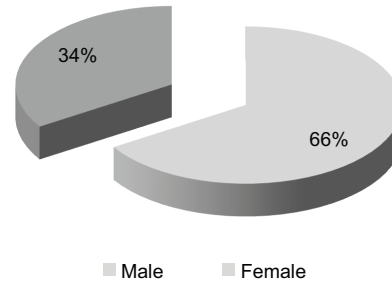


Figure 1: Sex distribution of the study population (n=163)

Table I:
Age of the thyroidectomy patients

Age	Male (n=55)	Female (n=108)	Total (n=163)	P
	42.7±14.9	40.8±13.1	41.2±13.4	0.447

Table II:
Indication variables of patients undergoing thyroidectomy:

Diagnosis	Number of patients(%)
Multinodular goitre	128(78.5%)
Thyroid carcinoma:	31(19.1%)
1)Papillary carcinoma	24(78%)
2)Follicular carcinoma	5(16%)
3)Medullary carcinoma	02(6%)
Follicular adenoma	02(1.2%)
Hashimoto's thyroiditis	02(1.2%)

Table III:
Surgical variables in patients undergoing thyroidectomy

Types of surgery	Total No. (%)
Hemithyroidectomy	82(50.3%)
Total thyroidectomy	71(43.56%)
Subtotal thyroidectomy	5(3.0%)
Neartotal thyroidectomy	5(3.0%)

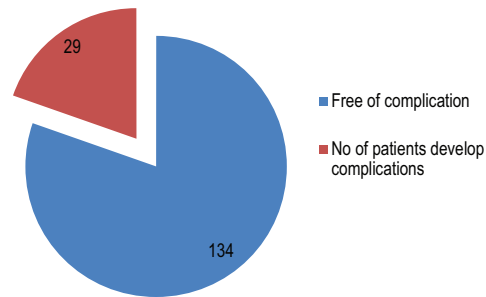


Figure 2: Out of 163 thyroidectomy patients, 29(17.80%) develop complications

Table IV:
Early and late postoperative complications in patients undergoing thyroidectomy

Complication	Early/ Temporary	Late/Permanent	Total
Hypocalcemia	15(9.20%)	2(1.23%)	17(10.43%)
RLN palsy (unilateral)	2(1.23%)	-	2(1.23%)
SLN palsy	3(1.84%)	-	3(1.84%)
Heamatoma	1(0.61%)	-	1(0.61%)
Wound infection	2(1.23%)	-	2 (1.23%)
Hypertrophic scar	-	4(2.45%)	4(2.45%)
Total	23(14.11)	6(3.68%)	29(17.80%)

Discussion:

In this study, incidence of thyroid disease is more in female (66%). The common thyroid surgery performed was hemithyroidectomy (50.3%) and the commonest indication for thyroid surgery was multinodular goiter (78.5%). Out of 163 patients 29 (17.8%) patients developed some complications, out of them hypocalcaemia was the most common complication with a frequency of 10.43% but 88.2% patient recovered within one month and was confirmed by serum calcium and parathyroid hormone level.

Among the 17 cases of hypocalcaemia 02 patients developed permanent hypocalcaemia that persists for more than six months and required oral and parenteral calcium supplement. In several studies, hypocalcaemia is known as the most typical postoperative complication. In a previous study, the incidence of short-term hypocalcaemia and long lasting hypocalcaemia were relatively 2%–53% and 0.4%–13.8%^{6,15-17}. In Suwannasarn et al. study hypocalcaemia was experienced in 38.5% patients.¹⁷ Temporary hypocalcaemia was 42% in Seo et al. Study.¹⁶ Hypoparathyroidism is the typical grounds of hypocalcaemia caused by unintentional parathyroid gland removal or gland devascularization.^{6,7} Features of hypocalcaemia usually appears on first and second days following surgery and most observer repeat serum calcium level following surgery to distinguish and handle properly the low levels of calcium. Transient hypocalcaemia generally respond well to calcium supplement therapy in a few days or weeks. Hypocalcaemia is diagnosed permanent when it does not revert back to normal level within 6 months^{6,7}.

In our study this complication was reported as about 9% in 1 month follow-up after surgery. In fact, the timely diagnosis of this

complication (in the first 24 h after surgery) and early onset of complementary therapies prevented the symptom and long-term complications. According to some studies, the delayed hypocalcaemia can occur in the first postoperative week and has been reported to occur months and even years following thyroidectomy.⁶ Of significant concern and consequence is the development of hypocalcaemia after thyroidectomy for Graves' disease.¹⁹ Despite excellent surgical technique and anatomical preservation of the parathyroid glands and their blood supply, these patients can demonstrate a delayed and rapid drop in serum calcium 2–3 days after total thyroidectomy.

Further complications in our study was hoarseness, haematoma, hypertrophied scar as well as wound infection. Voice change was temporary and became normal within 03 months. Quality of voice was assessed and movement of vocal cord was confirmed by FOL. Moreover, previous studies have shown RLN injury, transient hypocalcaemia and hypoparathyroidism as the frequent complications of thyroid surgery, whereas unusual complications are cellulitis, infection and indemnity to the carotid artery, jugular vein and esophagus are singular.^{20,21} It's obvious that the incidence of post operative complications are related to the number of surgery and the capability of the surgeon.^{10,22,23}

Some author have recommended the use of intraoperative nerve monitoring but it does not give the impression to decline the incidence of nerve palsy.¹⁸ Cautious dissection and clear anatomical knowledge with skilled surgical technique can reduce the rate of complication in thyroid surgeries.

Conclusion:

Hypocalcaemia was the most common complication after thyroid surgery, while voice

change, seroma, haematoma, wound infection and hypertrophied scar are other complications. This is an extended durational study to survey the complications but subject matters to various factors. It is hospital based one centre study that is not on behalf of entire attribute of country.

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