



FREQUENCY OF POST-OPERATIVE COMPLICATIONS OF THYROIDECTOMY.

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ABSTRACT... Objectives: The objective of this study is to determine the frequency of post-operative complications of thyroidectomy. **Study Design:** Observational study. **Setting:** LUMHS Jamshoro at the Surgery Department. **Period:** January 2016 to December 2017. **Material and Method:** During these two years all the patients visiting surgery department with thyroid swelling were assessed. Assessment of thyroid swelling was done by detailed history and clinical examination. For further assessment of the swelling thyroid function tests (serum T3, T4, TSH level), ultrasound, isotope scanning and FNAC was performed. Assessed post-operative complications of thyroidectomy. **Results:** After assessment thyroidectomy was performed in 143 patients. Among them there were 37 males and 106 females. The ages of patients were in the range of 15-55 years and mean age was found to be 38 years. All of these patients have visited us due to complain of thyroid swelling. After complete assessment it was found that most commonly diagnosed thyroid swelling was multinodular goitre (51.04%). On ultrasound findings 60% of patients showed solid consistency whereas cystic and mixed were found in less patients. Post-operative complications were found in 61 patients (42.6%). Hypocalcaemia was the most frequent complication found in 14.68% of patients. **Conclusion:** Thyroidectomy is a commonly performed procedure in endocrine surgery with low morbidity and mortality. Despite improvements in surgical techniques and anaesthetic equipment, the rate of complications in thyroidectomy is constant. Post-operative measurement of calcium levels in susceptible patients can prevent tetany and emergency room admissions.

Key words: Frequency, Postoperative Complications, Thyroidectomy.

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INTRODUCTION

Thyroidectomy is a common and safe procedure in endocrine surgery, has low mortality and morbidity rates. With recent advancement in surgical techniques and antiseptic measures, complications with thyroidectomy have decreased. Complications in thyroidectomy is frequently associated with expertise of the surgeon. In specialized centres, thyroidectomy has zero mortality and fewer complications reported.¹ Most common indications for thyroidectomy are toxic nodules, multinodular goitre, graves disease and malignancy.² Most common complications of total thyroidectomy are recurrent laryngeal nerve palsy and transient hypocalcaemia. Post-operative hypocalcaemia is the most frequent cause of emergency hospital admissions, it can be treated immediately by intravenous calcium infusion.³ Post-operative hypoparathyroidism associated

with thyroidectomy is multifactorial. It could be due to specific surgical techniques, resection of parathyroid glands, vascular injury to parathyroid gland. Thyroid pathologies like graves' disease, multinodular goitre and thyroid malignancy are associated with extensive surgical resection, hence higher risk of parathyroid gland removal.⁴ Thyroidectomy is one of the most frequent surgeries performed in iodine deficient areas due to increased incidence of goitre.⁵ Recurrent goitre is also common in iodine deficient areas. Multiple surgeries performed for recurrent goitre can cause extensive scarring and tissue handling leads to damage to parathyroid gland and surrounding structures. Hence with multiple surgeries relative risk of recurrent laryngeal nerve injury and vascular injury.⁶ Reviewing the possible complications of thyroidectomy, minimally invasive thyroid surgery for removal of thyroid

nodules have been started. Although there are no large-scale conducted on the effectiveness of minimally invasive surgery. In 2002, outcomes for minimally invasive thyroid surgery were studied from 4 specialized centres and it was found that it offers less post-operative stress and good cosmetic results.⁷ Recurrent laryngeal nerve palsy is a long known adverse effect of thyroid surgery and its incidence is around 3.48%.⁸ Although advancement in surgical techniques and anaesthetic procedures have led to decreased incidence of other complications but the rate of RLN palsy remains same. RLN palsy causes hoarseness of voice and swallowing problems.⁹ Other complications like bleeding, hematoma formation and wound infection can be reduced with the help of CT scan and MRI.¹⁰ Hematoma formation is a life-threatening complication of thyroid surgery, its risk has been reduced over time. It causes upper airway compromise and sudden death. Studies performed on identifying risk factors for hematoma formation concluded that outpatient thyroidectomy is the single most important risk factor. Hence outpatient thyroidectomy is not widely accepted procedure by experienced surgeons.¹¹

METHOD

This study was conducted in LUMHS Jamshoro at the surgery department during the time period of January 2016 to December 2017. It was a two year study done to study post-operative complications of thyroidectomy. During these two years all the patients visiting surgery department with thyroid swelling were assessed. Assessment of thyroid swelling was done by detailed history and clinical examination. For further assessment of the swelling thyroid function tests (serum T3, T4, TSH level), ultrasound, isotope scanning and FNAC was performed. After definitive diagnosis of the swelling, type of thyroidectomy to be performed was decided. Post operatively all patients were kept under observation for complications.

RESULTS

After assessment thyroidectomy was performed in 143 patients. Among them there were 37 males and 106 females. The ages of patients were in the range of 15-55 years and mean age was found to

be 38 years. All of these patients have visited us due to complain of thyroid swelling. Table-I shows characteristics of patients and their presenting complains. After complete assessment it was found that most commonly diagnosed thyroid swelling was multinodular goitre (51.04%). Table-II shows the diagnosis of all patients. On ultrasound findings 60% of patients showed solid consistency whereas cystic and mixed were found in less patients. Table-III shows FNAC findings of patients.

Post-operative complications were found in 61 patients (42.6%). Table-IV shows the type of operation performed and post-operative complications. Hypocalcaemia was the most frequent complication found in 14.68% of patients.

	No. Patients	Percentage
Gender		
Male	37	25.87%
Female	106	74.12%
Age		
15 to 25 years	7	4.89%
26 to 35 years	47	32.86%
36 to 45 years	51	35.66%
46 to 55 years	38	26.57%
Socio economic Status		
Poor	22	15.38%
Middle class	87	60.83%
Upper class	34	23.77%
Symptoms		
Thyroid swelling	143	100%
Cervical lymph adenopathy	10	6.99%
Hoarseness of voice	11	7.69%
Pain in swelling	9	6.29%
Weight loss	9	6.29%

Table-I. Characteristics of patients

Clinical Diagnosis	No of Patients (n)	Percentage (%)
Simple nodule	41	28.67%
Toxic nodule	4	2.79%
Colloid goiter	16	11.18%
Multinodular goiter	73	51.04%
Carcinoma of thyroid	9	6.29%

Table-II. Diagnosis of the patient

FNAC Finding	No of Patients (n)	Percentage (%)
Negative for malignancy	115	80.41%
Suspicion of malignancy	10	6.99%
Positive for malignancy	10	6.99%
Unsatisfactory	8	5.59%

Table-III. FNAC finding of patient

Types of Operation Performed	No of Patients (n)	Percentage (%)
Lobectomy	27	18.88%
Hemithyroidectomy	30	20.97%
Subtotal thyroidectomy	78	54.54%
Near total thyroidectomy	5	3.49%
Total thyroidectomy	3	2.09%
Post-operative complications		
Hemorrhage	8	5.59%
Hematoma	4	2.79%
Hypocalcemia	21	14.68%
Unilateral Recurrent laryngeal nerve paralysis	6	4.19%
Bilateral Recurrent laryngeal nerve paralysis	2	1.39%
Hypoparathyroidism	8	5.59%
Wound infection	10	6.99%
Kilorrhea	2	1.39%

Table-IV. Type of surgery performed and post-operative complications

DISCUSSION

Worldwide thyroidectomy is performed by surgeons of different expertise and backgrounds. Major indications for surgery are thyroid surgery are large multinodular goitre, cold nodules and malignancy. Other than medical indication it could be patient's desire to get the surgery.¹² Total or subtotal thyroidectomy has been discussed in a lot of researches and there is still no definite decision. The amount of thyroid tissue to be left after surgery depends on the clinical judgment of the surgeon and previous course of disease.¹³ Since total thyroidectomy brings the burden of daily thyroxin intake, subtotal thyroidectomy has been the standard resulting in euthyroid state of the patient and disease elimination. Subtotal thyroidectomy carries lower risk of recurrent laryngeal nerve injury and

parathyroidectomy.¹⁴ Some researchers have supported total thyroidectomy as it provides definite disease control and similar morbidity rates.¹⁵ Complications vary as it depends whether it is a primary surgery or recurrent surgery is being performed. Hospital related factors like duration of surgery, experience of the surgeon, patient load and frequency of thyroid surgery. To identify the effect of all these factors on the outcome, a multivariate analysis needs to be performed.¹⁶ Minimally invasive thyroidectomy has also been studied and its complication rates are similar to the conventional surgery. However, the frequency of permanent hypoparathyroidism is lower in minimally invasive thyroidectomy. A multiple centre study was carried out and it showed that the risk of recurrent laryngeal nerve palsy is higher than 3%.⁷ Preservation of parathyroid gland doesn't decrease the risk of post-operative hypocalcaemia. Transient hypoparathyroidism is a well-accepted outcome of total thyroidectomy. Degree and duration of hypocalcaemia can be determined by extent of thyroidectomy.¹⁷ Permanent hypoparathyroidism is more commonly associated with surgery for malignancies. According to published reports the incidence of hypoparathyroidism ranges between 0.3% to 32% in overall cases.¹⁸ Aetiology behind post-operative hypocalcaemia include vascular damage, excision of the gland and hematoma formation. Post-operative hypocalcaemia is predominant in patients already having low calcium levels before surgery.¹⁹ Evidence for the impact of age on post-operative hypocalcaemia is still not clear, as some studies show that it is more common in younger patients while others show it is more common in old patients.²⁰ Bleeding after thyroidectomy usually presents after 6 hours and outpatient or same-day thyroidectomy patients should be monitored at least 6 hours post-operatively. There are a lot of studies consistent with these reports in order to monitor for post-operative haemorrhage. Factors increasing the risk of haemorrhage are older age, thyroid malignancy, total thyroidectomy and male gender.²¹

CONCLUSION

Thyroidectomy is a commonly performed



procedure in endocrine surgery with low morbidity and mortality. Despite improvements in surgical techniques and anaesthetic equipment, the rate of complications in thyroidectomy is constant. Post-operative measurement of calcium levels in susceptible patients can prevent tetany and emergency room admissions.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author's Signature
1	M. Rafique Pathan	Conception and design, Statistical expertise, Critical revision of the article for important intellectual content.	
2	M. Qasim Mallah	Data collection critical revision of the article for important intellectual content.	
3	Mujeeb Rehman Abbasi	Critical revision of the article for important intellectual content, Drafting of the article.	