

Original Article

**OUTCOMES AND COMPLICATIONS OF THYROID SURGERIES: AN EIGHT YEAR EXPERIENCE**

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**Abstract**

**Background:** Analysing the complexities and outcomes of thyroidectomies in a rural setting is important for optimizing patient care, addressing potential disparities and also identification of the areas for improvement. **Methods:** It is a retrospective observational study taken at a rural tertiary care teaching hospital. The data of the patients undergoing thyroidectomy surgery in the institute in last 8 years is analyzed and reported. **Results:** Total 100 cases were included in the study. Right hemi thyroidectomy was done in 57 cases, Left hemi thyroidectomy was done in 26 cases, total thyroidectomy was done in 5 cases, total thyroidectomy with neck dissection was done in 9 cases and isthmectomy was done in 3 cases. The diagnostic profile showed total 38 cases of colloid goitre, 35 cases of nodular goitre, 4 cases of multi nodular goitre, 9 cases of follicular neoplasm, 9 cases of papillary thyroid carcinoma, 3 cases of isthmus solitary nodule, 1 case of lymphocytic thyroiditis and 1 case of Hurthle cell tumour. Total 6 patients had transient recurrent nerve palsy and 2 patients had transient hypocalcaemia. **Conclusion:** The findings of this study tell us about the need for resource allocation, healthcare planning and quality improvement initiatives required in this area. Further research with larger sample size is required to improve the limitations of the study and to expand our understanding of thyroid surgical practices in rural areas.

**Key words-** Thyroidectomy, outcomes, rural area.

**INTRODUCTION**

Thyroidectomy is a surgical procedure which involves removal of a part or whole of thyroid gland. Billroth and Kocher were the pioneers of the classic thyroidectomy in the 1870s, with a mortality rate of 8% at that time. [1, 2] Continuously improving techniques, newer diagnostic modalities and technological advancement has resulted in significant reduction in the mortality associated with this surgery.

Thyroid surgeries are required for a number of indications including benign and malignant conditions like thyroid nodules, obstructive goitre, carcinomas, lymphomas and metastasis from extra thyroidal primary malignancies which are not manageable medically or because of local compression symptoms. [3,4] There are different types of indications in different regions of the world depending upon the endemicity of specific thyroid conditions.[5] Thyroid swellings are common and approximately 4% of these occur in population aged between 30 and 60 years.

Most of the thyroid swellings are benign in nature while around 10% to 20% of the swellings are usually malignant [6]. Histological classification of thyroid lesions includes non-neoplastic as well as neoplastic conditions is essential for further management and prognosis [7].

The aim of our study is to share our experience of last 8 years about the thyroidectomies we conducted at our tertiary care hospital in a rural area of Haryana and document various indications and trends of the types of thyroidectomy operations done in our institute as well as to fetch demographic profile of patients undergoing thyroidectomies at our institute representing a rural area which is in fact the most aspiring district of the country. Analysing the complexities and outcomes of thyroidectomies in a rural setting is important for optimizing patient care, addressing potential disparities and also identification of the areas for improvement.

## **MATERIAL AND METHODS**

It is a retrospective observational study taken at a rural tertiary care teaching hospital. The data of thyroidectomy surgeries from ENT operation theatre and medical records department of the hospital, from January 2015 to November 2021, was collected and analysed for demographic profile of the patients and the trend of indications and complications related to the thyroid surgeries in our institute. The patients who underwent other head and neck surgeries which included thyroidectomy as a part of the procedure were excluded from the study.

## **RESULTS**

Total 100 cases were included in the study. Out of which 97 were females and only 3 males. Overall average age of presentation was around 34yr. Yearly total number of cases reported were 4 cases in 2014, 12 cases in 2015, 3 cases in 2016, 17 cases in 2017, 15 cases in 2018, 28 cases in 2019, 9 cases in 2020 and 12 cases in 2021. As for as type of surgery was concerned Right hemi thyroidectomy was done in 57 cases, Left hemi thyroidectomy was done in 26 cases, total thyroidectomy was done in 5 cases, total thyroidectomy with neck dissection was done in 9 cases and isthmectomy was done in 3 cases.

The diagnostic profile showed total 38 cases of colloid goitre, 35 cases of nodular goitre, 4 cases of multi nodular goitre, 9 cases of follicular neoplasm, 9 cases of papillary thyroid carcinoma, 3 cases of isthmus solitary nodule, 1 case of lymphocytic thyroiditis and 1 case of Hurthle cell tumour.

Out of 100 patients total 6 patients showed transient recurrent nerve palsy which improved in around 6 months while 2 patients showed severe transient hypocalcaemia which improved in 3 to 4 months in both patients.

## **DISCUSSION**

Thyroid gland is very unique among all the endocrine glands. It is the largest endocrine gland in the body. Anatomic descriptions of the gland were available by the 17th century, but the function of the gland was not known till then. In 19th century pathological enlargement of the thyroid gland, or goiter was described [8]. Thyroid swellings are very superficial and easily visible with wide range of lesions which differ in biological behavior [9].

The study encompasses a significant duration of eight years, allowing for a comprehensive evaluation of trends of thyroid diseases requiring surgery. We analyzed overall number of thyroidectomies performed during the study period. The authors report a measure of the burden of thyroid diseases in the rural population served by the tertiary care teaching hospital. Understanding the surgical volume helps in assessing the demand for thyroid surgical services and highlights the need for adequate resources and expertise to meet the healthcare needs of the population. In our study we could find total 100 thyroidectomy surgeries being performed over a span of 8 years.

Furthermore, the study investigated the demographics of patients undergoing thyroidectomies. By analyzing patient age and gender distribution this study provided an insight into the characteristics of the population requiring thyroid surgery. Understanding the demographics of the patient population is crucial for tailoring preoperative evaluations, optimizing surgical techniques, and planning postoperative care. In our study there were 97 females and only 3 males. The higher number of cases among females compared to males is consistent with the higher prevalence of thyroid disorders in women. This is consistent with the study by even large sample size like Bures et al which showed 76% female patients being reported with 5203 females out of total 6778 patients. [10]

In our study the average age was found to be around 34 yr. The yearly average age varied slightly, with values ranging from 32.41 years in 2015 to 35.91 years in 2020. This is just like reported by Pradeep et al where the study in same setting of developing country showed average age group of 39 year. [11]

The study also examines the distribution of thyroid diseases requiring surgery. By analyzing the prevalence of different thyroid pathologies, such as goiter, nodules, and thyroid malignancies, this study analyses valuable information about the spectrum of diseases encountered in the rural population. This information can guide healthcare providers in resource allocation, including the availability of specialized surgical techniques, diagnostic tools, and multidisciplinary collaborations. The study of prevalence of different thyroid conditions over the years showed that the most common conditions observed were Colloid Goiter, Nodular Goiter, and Follicular Neoplasm. Colloid Goiter was consistently present throughout the years, with a total of 6 cases reported in 2015 to 8 cases in 2021. Nodular Goiter had a fluctuating pattern, with 1 case in 2014, 3 cases in 2015, 2 cases in 2016, 7 cases in 2017, 4 cases in 2018 and a significant increase to 15 cases in 2019, and a again a decline in last 2 years. Follicular Neoplasm was consistently reported with 2 cases in 2015 to 3 cases in 2019. The frequency of different histopathological types is similar to other studies in the country like Jagadale K et al who reported 72% of non-neoplastic diseases of thyroid like colloid and multinodular goiters and 28% neoplastic lesions like follicular adenoma and papillary thyroid carcinoma.[12]

The observed trends in this data will give right insights for clinicians and researchers. For instance, the increased prevalence of nodular goiter in 2019 followed by a slight decline in next few years indicates a temporary rise in the occurrence of the disease, requiring further investigation into its underlying causes. Similarly, the presence of Follicular Neoplasm cases in recent years may suggest an increased awareness and improved diagnostic modalities in screening and detecting.

This study also analyses the surgical approaches employed in this rural tertiary care hospital. Although all the cases done in our study were conventional open thyroidectomy this particular information might be useful for surgeons as well as healthcare providers in assessing the adoption of different techniques and identifying key areas for improvement.[13] Regarding the surgical procedures, right hemi thyroidectomy was the most frequently performed procedure, with total 57 cases being reported starting with 2 cases in 2014 and 8 cases in 2015 to 16 cases in 2019, and then declining to 7 cases in 2021. Left hemi thyroidectomy showed a similar pattern, starting with just one case in 2014, 3 cases in 2015, peaking at 6 cases in 2018, and then 4 cases in 2021. Overall 26 cases of left hemi thyroidectomy were being reported. Total thyroidectomy was performed in total 10 cases while total thyroidectomy with neck dissection was done in 9 cases, all were being papillary thyroid carcinoma. Isthmectomy was overall to be performed in 3 cases with solitary isthmus nodule. The trend of more tendency of right lobe being involved shown in our institute is almost similar as shown in other institutes as reported by Sengupta et al where 43.3 % patients were reported with right thyroid swelling and 19% with left thyroid swelling. [14]

Out of 100 patients total 6 patients showed transient recurrent nerve palsy which improved in around 6 months with speech therapy while 2 patients with total thyroidectomy showed severe transient hypocalcaemia which improved in 3 to 4 months in both patients with medical management. Similar to a review article by Hayward et al which reported transient palsies in 5-8% patients [15]. But study by Bourrel et al reported 8 out of 95 patients showing signs of severe postoperative transient hypocalcaemia [16].

It can be concluded that the study provided valuable insights into the surgical landscape and patient characteristics related to thyroidectomies in a rural setting. The authors acknowledge certain limitations like the retrospective design and the lack of long-term follow-up of the patients. The findings of this study tell us about the need for resource allocation, healthcare planning and quality improvement initiatives required in this area. Further research with larger sample size is required to improve the limitations of the study and to expand our understanding of thyroid surgical practices in rural areas.

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