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**Original Research Article**

# The outcome of short stay thyroidectomy in rural medical outreach settings in Northern Nigeria

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## ABSTRACT

**Background:** The practice of short stay thyroidectomy is relatively new in developing nations like Nigeria. The primary reason for this is a lack of resources. Furthermore, the prevailing poverty prevents many patients from accessing tertiary health care, as such, ad hoc medical outreaches are usually conducted to bridge the gap. Thyroidectomies have not been routinely performed in these outreach settings due to safety concerns. The study seeks to analyse whether short stay thyroidectomy can be safely practiced under medical outreach settings with limited resources.

**Methods:** The study is a prospective review of all patients that had short stay thyroidectomy at four rural medical outreach settings in Nigeria. Entire study spanned January 2019 to November 2019. Each outreach lasted one week, and patients were followed up for the duration of the outreach. All patients presenting at the outreach locations and diagnosed with goiters who have had no prior neck surgeries, are euthyroid, have no locally advanced malignancies or intrathoracic goiters, have adequate social support, possess a telephone, and have accommodation within the local government area where the outreach is carried out were included in the study. Exclusion criteria included patients who did not satisfy any of the above listed inclusion criteria. Thyroidectomy was done through a standard cervicotomy. Descriptive statistics were applied.

**Results:** A total of 81 patients with non-toxic goiters had thyroid surgery. There were 76 (94%) females and five (6%) males. Average age was 46 years. Sixty-nine (85.2%) patients had no complication, while 12 (14.8%) patients had complications. Seventy-seven (95.1%) patients were discharged within 24 hours of surgery, while four (9.4%) patients were discharged within 48 hours. There was no mortality.

**Conclusions:** The short-stay thyroidectomy model is feasible and safe in our environment, even in the presence of limited resources, and provides an alternative to the traditional 72 hour postoperative hospital stay.

**Keywords:** Complications, Resource-poor, Short stay, Thyroidectomy

## INTRODUCTION

The duration of hospital stay following surgical procedures has progressively decreased over time. Many major surgical procedures, including thyroid surgeries, are now performed on a daycare basis.

Traditionally, patients undergoing thyroid surgery are observed for up to 72 hours before discharge.[1] However, the length of hospital stay post thyroidectomy has progressively decreased from several nights to a postoperative course of fewer than 6 hours.[2-4] The knowledge of the life-threatening complications following thyroidectomy and the time frame during which they occur were the major determining factors for the postoperative stay of patients.[5] Recent advances in surgical technique, anesthesiology, pharmacology, and postoperative care have all contributed to the observed

downward trend in the length of hospital stay, post thyroidectomy.

The advantages of reduction in hospital stay include reduced costs, reduced in-patient waiting lists, increased availability of in-patient beds, reduced post-op complications, and the psychological benefit of avoiding prolonged hospitalization.[6,7]

Although short stay thyroidectomy is commonly practiced in developed countries all over the world, the practice is still nascent in developing nations like Nigeria. Reasons for this include a lack of resources, including medical technology, adequately skilled personnel, and poor socioeconomic status of a vast majority of patients. Furthermore, many patients in this part of the world tend to present with advanced, already complicated disease and co-morbidities that require a prolonged hospital stay to manage adequately. Goiters are endemic in the northern part of Nigeria, where this study was conducted. This fact, combined with few hospitals and bed spaces to cater for a large number of patients encountered, makes the practice of short stay thyroidectomy very desirable.

The prevailing poverty in the region prevents many patients from accessing tertiary health care; as such, ad hoc medical outreaches sponsored by well-meaning individuals and organizations are usually conducted to bridge the gap. The extent and types of surgeries that can be performed at these outreaches are limited. Thyroidectomies have not been routinely performed in these outreach settings due to safety concerns. The study seeks to analyze whether short stay thyroidectomy can be safely practiced under a medical outreach setting with limited resources.

## METHODS

The study was a prospective review of all patients that had short stay thyroidectomy under local anesthesia. The study was carried out at four rural medical outreach settings in four local government areas of Plateau and Adamawa states which are both located in northern Nigeria. The local government areas included Quanpan, Lantang-south in Plateau state, and Lamurde and Numan local government areas in Adamawa State. The entire study period was from January 2019 to November 2019. However, each outreach lasted one week, and patients were followed up for the duration of the outreach.

### *Inclusion criteria*

All patients presenting at the outreach location and diagnosed with goiters were included in the study if they satisfied the following criteria.

- Patients must have had no prior neck surgeries
- They must be euthyroid
- Have no locally advanced malignancies or intrathoracic goiters.

Additionally, they must have adequate social support, possess a telephone, and have accommodation within the local government area where the outreach is carried out for easy access to the health facility in the event of an emergency. These second set of criteria were necessary given the lack of adequate road transport or ambulance facilities.

### *Exclusion criteria*

- Patients who were diagnosed with goiters
- Exclusion criteria included patients who did not satisfy any of the above listed inclusion criteria.

### *Patient preparation, surgery and discharge*

Due to the high patient load and lack of imaging modalities to properly asses the size of the goiters. A crude method was used to quickly asses the size of the goiters by comparing them to the size of the patient's fist. So, if the size of the goiter was less than the patient's fist, it was classified as a small goiter. If it was the same size as the patient's fist, it was classified as a medium goiter. If it was larger than the patient's fist, it was classified as large. In the setting, it is not uncommon to come across goiters that are as large as the patient's head. These were classified as giant goiters. This method of classification eased the triaging of patients for surgery.

All patients had a packed cell volume and random blood sugar done before surgery. All surgeries were performed using field block with 1% lidocaine and adrenaline 1:200,000 dilution. Thyroidectomy was done through a standard cervicotomy. After surgery, drains were routinely placed at the surgical site. The patients were admitted for overnight ward observation and discharged in the following morning upon removal of drains. The discharge was within 24 hours post-surgery. Patients who had complications that were not amenable to resolution within 24 hours were discharged within 48 hours post-surgery.

Criteria for discharge included stable vital signs, with no wound or airway problems. Before discharge, all patients and their relatives received extensive verbal post-operative instructions in the local dialect concerning symptoms associated with complications. Instructions were given verbally because the vast majority of patients could neither read nor write, and as such, written instructions were not feasible. Patients and their relatives were instructed to quickly return to the location of the outreach if they developed any problems. In the absence of complications, patients were still told to return three days after discharge for routine postoperative review.

### *Statistical analysis*

Data of all the patients were captured and analyzed using the SPSS version 21. Demographic and clinical information of patients included age, sex, type of goiter, size of the goiter, type of thyroid surgery, duration of

surgery, complication and length of hospital stay. Descriptive statistics were applied.

## RESULTS

After excluding the patients with toxic and malignant goiters, a total of 81 patients with non-toxic goiters had thyroid surgery. Females comprised 94% (76) of patients, and males comprised 6% (5) of patients. The female-to-male ratio was 15:1. The average age of the population was 46 years (SD = 10.6 years). The age range of the study population was 31 years to 71 years.

Seventy two (88.9%) patients had multinodular goiters, nine (11.1%) patients had solitary thyroid nodules. Using the crude method of size classification earlier described, 19 (23.5%) patients had small goiters, 27 (33.3%) had medium size goiters, while 35 (43.2%) had large goiters. For the type of surgeries performed, 48 (59.3%) patients had subtotal thyroidectomy, 13 (16%) had right lobectomy, 12 (14.8%) had left lobectomy, four (4.7%) had thyroid isthmusectomy, and four (4.7%) had total thyroidectomy.

Seventy-eight (96.3%) patients had surgery, which lasted one hour, and three (3.7%) patients had surgery, which lasted longer than one hour. Sixty-nine (85.2%) patients had no complication, while 12(14.8%) patients had complications. Of the 12(14.8%) patients with complications, nine (11.1%) patients had postoperative bleeding, two (2.5%) patients had airway obstruction not associated with hematoma, and one (1.2%) patient had hoarseness of the voice.

Of the nine (11%) patients with post-op bleeding, four required re-exploration, while five were managed conservatively. Of the four patients who had re-exploration surgery, two had a definite bleeder that was identified and ligated and hematoma evacuated. The remaining two patients had no definite bleeder that could be identified. So, for those patients, evacuation of the hematoma sufficed.

For the two (2.5%) patients with airway obstruction, one had airway obstruction resulting from tracheomalacia. This patient had plication of the trachea with strap muscles. The other patient's airway obstruction was due to laryngeal spasm, which resolved spontaneously. Seventy-seven (95.1%) patients were discharged within 24 hours of surgery, while four (9.4%) patients were discharged within 48 hours. There was no mortality.

## DISCUSSION

Several studies have shown short stay thyroidectomy to be safe, and though the concept is still nascent in developing countries, it is increasingly being practiced.[8,9] In present study, no patient who was discharged required readmission due to complications. All complications encountered were successfully managed before the discharge of the patients, and no mortality was recorded. These attest to the safety and feasibility of the short stay model in resource-poor settings.

Seventy-seven (95.1%) patients met the discharge criteria and were discharged within 24 hours of surgery, while four (4.9%) were discharged within 48 hours post-surgery. This finding of only 4.9% requiring a post-operative stay of greater than 24 hours is consistent with other studies which have shown that most patients can be discharged safely within 24 hours, with only a small fraction (<5%) requiring more than 24 hours of hospital stay provided they are selected according to the surgical criteria earlier mentioned.[10-12]

Sixty-nine (85.2%) patients had no complication following thyroidectomy. This finding compares well with recent studies that show that with meticulous surgical technique, thyroidectomy as a procedure is associated with a low risk of complications.[13-16] The relatively higher rate of postoperative bleeding may be explained by the fact that these procedures were carried out under a medical outreach setting with limited resources and high patient turnover.

Postoperative bleeding with the potential for airway compromise is the most life-threatening complication of thyroid surgery. In present study, all nine (100%) of the patients with postoperative bleeding presented within 24 hours of surgery. The finding of bleeding occurring within 24 hours is consistent with results from other studies, which showed that all significant hemorrhage associated with thyroid surgery usually occurs within 24 hours of surgery.[17-19] Twenty-four hours is the standard observation time for short stay thyroidectomy. Present study, combined with evidence from other studies, showed that the short stay model does not pose any additional safety risks to patients in terms of hemorrhage. Furthermore, some studies show that most postoperative bleeding occurs within six hours (even shorter than observed) and that late hematomas are not common.[20,21]

Thirty five (43.2%) of the thyroidectomies were done for large goiters, and study had one case of tracheomalacia, which was managed by plicating the strap muscles around the trachea. This complication did not increase the postoperative stay of the patients. Tracheomalacia is a condition that often results from a large goiter compressing on the trachea and its underlying structures. Some studies from developing countries have shown tracheomalacia to be a relatively common cause of airway compromise post thyroidectomy due to a high prevalence of large, longstanding goiters.[22,23] In countries like Nigeria, goiters are often neglected until they have attained enormous sizes. However, in present study, hematoma was the most common cause of airway compromise, even though study had a good number of large goiters.

There were no case of laryngeal edema in present study. A large goiter displacing the trachea is a risk factor for

difficult intubation resulting in repeated attempts and subsequent laryngeal edema.[24] However, due to the use of local anesthesia for all thyroidectomies, there was no need for intubation. The advent of local and regional anesthetic techniques has made thyroidectomy possible without intubation and has contributed to lessened postoperative stay.[25-27] Furthermore, thyroidectomy under local anesthesia has been shown to be safe and effective in resource-poor settings with limited facilities for general anesthesia.[28-31]

There was also no case of symptomatic hypocalcemia in the series, though some other studies showed hypocalcemia to be the most common morbidity post thyroidectomy.[7,32-34] Zero incidence of hypocalcemia may have been due to the very few cases of total thyroidectomy in the study.

## CONCLUSION

Short stay thyroidectomy model is feasible and safe in our environment, even in the presence of limited resources, and provides an alternative to the traditional 72 hour postoperative hospital stay. Not every patient qualifies for short stay thyroidectomy; as such, patients must be adequately screened and triaged before surgery to forestall serious complications.

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