
THYROIDECTOMY UNDER LOCAL ANAESTHESIA AT A MEDICAL MISSION IN A POOR RURAL COMMUNITY: A SAFE ALTERNATIVE IN SELECTED PATIENTS

Etuk EB¹, Amanari OC¹, Edubio MN²

¹*Department of Surgery, University of Uyo Teaching Hospital/University of Uyo, Uyo, Nigeria*

²*Department of Anaesthesia, University of Uyo Teaching Hospital/University of Uyo, Uyo, Nigeria*

ABSTRACT

Background: *Surgical missions have become regular in rural sub Saharan Africa, and these have*

helped to cater for surgical needs in these areas. Major surgeries are often performed in these

areas amidst poor facilities for evaluation and treatment. Careful patient selection

for thyroidectomy under local anaesthesia results in good surgical outcomes, and these can be

replicated successfully with great care in these rural settings.

Methodology: *A descriptive study of thyroidectomies done under local anaesthesia in select*

patients during a 2-week medical mission by Pro-Health International in Weala, Liberia. Twelve

patients presented with goitres, with ages ranging from 28 to 80 yrs. Inclusion criteria for

selecting patients for surgery were those undergoing first time neck surgery, small or moderate

sized goiters without toxic or malignant features, sleeping pulse of less than 80 and American

Society of Anaesthesiologists Physical Status (ASA-PS) I and II.

Results: *Only 3 patients out of the 12 patients met the criteria. They all had subtotal thyroidectomy done successfully under local anaesthesia. One patient with moderate*

goitre

received whole blood transfusion for primary haemorrhage. The postoperative period was uneventful.

Conclusion: *With proper selection, thyroidectomy under local anaesthesia can be useful and effective in a poor healthcare facility.*

KEYWORDS: *Thyroidectomy, local anaesthesia, medical mission*

INTRODUCTION

Most regions in Africa, and other developing regions of the world, lack basic surgical care, resulting in significant intraoperative and postoperative morbidities and mortalities. It is known that approximately 2 billion people still have no access to basic surgical care and as much as 11% of the global burden of disease can be treated with surgery.¹ Humanitarian organizations like Pro-Health International have provided a way to deliver this surgical care to these communities located in rural areas in Africa, with poor access to healthcare from lack of facilities, finances or knowledge of their need for proper healthcare.² Many of these surgeries would have to be performed with very limited facilities and poor prior preparations. While many of the surgeries done in these missions are minor, a significant number of patients will require major surgeries under these poor conditions. The aim of this paper is to show that thyroidectomies under local anaesthesia in a resource poor setting can be very successful so long as the patients are carefully selected.

MATERIALS AND METHODS

A descriptive study of subtotal thyroidectomies done under local anaesthesia in selected patients during a free medical mission by Pro-Health International, in Weala, Liberia, in March 2013. 12 patients presented with goitres, 5 males and 7 females, with ages ranging from 28 to 80 yrs. The

Corresponding Author: DR EMMANUEL B. ETUK
*Department of Surgery
University of Uyo Teaching Hospital, Uyo
P M B 1136, Uyo, Akwa Ibom State, Nigeria
E-mail: etuk4j@gmail.com*

duration of the outreach was 2 weeks. There were no facilities for thyroid function test and for thyroid ultrasound scan. Inclusion criteria for thyroidectomy were those undergoing neck surgery for the first time, small or moderate sized goitres (grade 2 or less, WHO goitre grading system) without toxic or malignant features, sleeping pulse of less than 80 and ASA-PS I and II. The WHO goitre grading system was used in place of estimation of thyroid volume with ultrasonography, which was not feasible at the mission. Subtotal thyroidectomy was done under local anaesthesia using 5mg/kg 1% lidocaine with 1:100,000 adrenaline. The procedure was explained to the patients. Signed and informed consent was obtained. During the procedure, the patients were placed in supine position with about 15 degrees head elevation, sand bags between the shoulders and head stabilized in a head ring resulting in extension of the neck hence making the goiter to be more prominent. Through a transverse incision (skin crease) to the lateral borders of sternocleidomastoid muscles: two finger breaths (4 cm) above the supra sternal notch, passing through the skin (including the platysma muscle), access was gained to the subcutaneous tissues. The upper flap was raised to the level of thyroid cartilage and the lower flap to the level of sternum. The anterior jugular veins and anastomosing veins were divided between ligatures before the investing layer of deep cervical fascia was incised vertically in the mid line. The interval between the strap muscles (infrahyoid muscles) was opened in the midline, leading to exposure of pretracheal fascia covering the thyroid gland, which was incised in the mid line to expose the gland. The index finger was passed around each lobe to assess the size and extent of the lobes. The larger lobe was mobilized first and the middle thyroid vein divided between ligatures. The upper pole of the gland was delivered at the wound and the vascular pedicle, superior thyroid vessels were divided between double ligatures on the gland. We did not look for the recurrent laryngeal nerve. The lower pole of the gland was delivered to the wound and the inferior

thyroid vein was ligated. The isthmus part of the gland was dissected free of the trachea using thyroid dissector. We applied several forceps to the posterolateral aspect of the lobe before sectioning the lobe from lateral to medial, leaving on each side, the remnant of the gland about the size of the patient's thumb. After dealing with the larger lobe, the smaller lobe was operated upon. We did not use diathermy for the surgery because local anaesthesia instead of general anaesthesia was in use. Xylocaine with adrenaline was infiltrated into the tissues as the surgery was progressing. The adrenaline content helped in reducing blood loss in addition to the use of ligatures, artery forceps and digital pressure to achieve haemostasis. Redivac drain was left in situ deep to the strap muscles. The neck was closed in layers with subcuticular nylon to skin. The excised tissues were sent for histology

RESULTS

Only 3 patients with simple multinodular goiter (2 males with small goiters and 1 female with a moderate sized goitre) met our criteria. The remaining 9 patients that were excluded, were made up of a female, with a giant goitre, 2 patients with large goitres (1 male, 1 female), 3 patients (1 male, 2 females) with toxic features including hypertension, and 2 patients (1 male, 1 female) with suspicion of malignancy because of palpably enlarged ipsilateral jugulo-digastric group of cervical lymph nodes which were multiple, non tender, and discrete. They were all referred for tertiary care at Monrovia. The surgeries were without incident except for the female patient with moderate sized goiter who had primary haemorrhage for which she received 2 units of fresh whole blood. The postoperative period was uneventful. Drains were removed on the 2nd postoperative day. The patients were discharged on the 5th postoperative day after removal of sutures and subsequently placed on L-thyroxine 0.1mg daily. Specimens were sent for histology at Monrovia. However results were not ready during the period of the mission, hence the

patients were referred to a nearby general hospital for follow up care.

DISCUSSION

Thyroidectomy is the most commonly performed endocrine surgical procedure worldwide,³ hence many patients with goiters of various sizes are bound to present during these surgical missions. Aside from the fact that these surgical procedures could become more complex with larger goitres, serious complications could follow these surgeries.⁴ Airway compromise can occur; more commonly in large and retrosternal goiters. Uncontrolled haemorrhage from injuries to large vessels closely related to the gland could be a challenge⁵. Cardiac complications could also be a problem in these patients and thyroid storm could occur in the poorly prepared ones. Studies have shown that local anaesthesia can be as effective as general anaesthesia in thyroid surgeries with similar morbidities and good patient satisfaction.⁶ Local anaesthesia being more affordable in resource poor regions makes it quite attractive for thyroid surgeries at medical missions. However, a careful selection of patients to reduce complications is desirable in view of the poor preoperative preparation, and short postoperative stay of these patients. Materazzi et al⁷ demonstrated a shorter hospital stay following thyroidectomy in patients who are undergoing neck surgery for the first time, are euthyroid, have an estimated thyroid volume of less than 80ml on ultrasonography, and, do not have a locally advanced tumour, a retrosternal or intrathoracic goitre or need a lateral neck dissection. Local anaesthesia for thyroidectomy has become quite common with equally successful outcome compared to general anaesthesia.^{6, 9, 10} Even ambulatory thyroidectomies are commonly done in various centers in select patients who meet certain criteria; showing that safety can be enhanced by careful assessment.^{6, 9, 10} These criteria may need to be slightly modified in these poor rural areas to lean more on clinical findings due to poor availability of facilities

for complete investigations. In this instance, selection of patients for thyroidectomy under local anaesthesia requires good clinical acumen and strict clinical judgments. The criteria used for these patients relied more on clinical findings that will guide the surgeon in determining the size of the gland, the presence of toxicity, malignancy, or cardio-respiratory compromise, and the possible level of difficulty one will encounter during the surgical dissection. These modified criteria were very useful in reducing the morbidity following thyroidectomy under local anaesthesia in these patients making the procedure safe. Except for the primary haemorrhage in one of the patients, which was promptly corrected with blood transfusion, there were no significant intraoperative or postoperative complications from the surgeries that were done.

CONCLUSION

Local anaesthesia is a safe and effective alternative for thyroidectomy and may be utilized with good results by surgeons on medical missions in rural areas provided careful selection of patients is done to achieve a better outcome.

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