ISRG JOURNAL OF CLINICAL MEDICINE AND MEDICAL RESEARCH [ISRGJCMMR]

ISRG PUBLISHERS
Abbreviated Key Title: ISRG J Clinic.Medici.Medica.Res.
ISSN: 3048-8850 (Online)
Journal homepage: https://isrgpublishers.com/cmmr/
Volume – III, Issue - II (March-April) 2026
Frequency: Bimonthly

Thyroidectomy under Loco-regional anaesthesia with Monitored Anaesthesia Care

Khin Myat Wai[1], Yan Lynn Aung[2], Ko Ko Maung[3], Soe Htet Hylan[4]

[1, 2, 4] Department of Anaesthesiology, No. (2) Military Hospital (500-Bedded), Yangon, Myanmar

[3] Department of Anaesthesiology, Defence Services Medical Academy, Mingalardon, Myanmar

| **Received:** 28.02.2026 | **Accepted:** 05.03.2026 | **Published:** 10.03.2026

***Corresponding author:** Khin Myat Wai

Abstract

Background: The majority of thyroid surgery is currently performed under general anaesthesia (GA); however, most patients suffer feelings of lethargy and drowsiness after emergence from general anaesthesia, postoperative pain and difficulty accessing voice changes due to recurrent laryngeal nerve damage or nerve compression. Several recent studies show that thyroidectomy can be safely performed under loco-regional anaesthesia with monitored anaesthesia care(MAC) conducted by anaesthesiologists.This technique can avoid airway manipulations like tracheal intubation and general anaesthetics. Objectives:The main aim of this study is to evaluate the feasibility of bilateral superficial cervical plexus blocks with local infiltration under monitored anaesthesia care for thyroidectomy without patient or surgeon discomfort.Methods;This is a hospital-based interventional descriptive study. After applying exclusion criteria, eleven patients underwent thyroidectomy at No. (2) Military Hospital (500-Bedded), Yangon, Myanmar, from May 2023 to May 2024. Thyroidectomies were done by a single surgeon. Demographic data, intraoperative 0utcome-such as patient discomfort (pain, coughing, movement), voice changes, conversion to general anaesthesia, and patient and surgeon satisfaction with this anaesthetic technique were recorded and analysed . Results: There were eleven patients (10 females, 1 male) with a mean age of the patient was 44 years (the youngest was 20 and the oldest was 80years). The types of diseases included one malignancy, two diffuse goiters, eight simple multinodular goiters. The surgical procedure consisted of ten subtotal thyroidectomies and one total thyroidectomy. All patients tolerated varying degrees of discomfort during the operation, and no one needed a conversion to general anaesthesia. One patient suffered transient hoarseness ofvoice, which was relieved by anti-inflammatory drugs within two days. Surgeon satisfaction was high (10 satisfied,1 so-so), and most patients were satisfied (9satisfied, 2 so-so). Conclusion: Thyroidectomy under bilateral superficial cervical plexus block with monitored anaesthesia care is feasible, safe, and cost-effective. It allows real-time voice monitoring, avoids airway instrumentation, and shortens hospital stay. Moreover, it avoids the usage of volatile anesthetics, leading to reduced environmental pollution.

Keywords: *Loco-regional anaesthesia, monitored anaesthesia care,thyroidectomy, superficial cervical plexus block.*

DOI: 10.5281/zenodo.18935234

1. Introduction

Early in the 20th century, thyroid surgery was commonly performed under local anaesthesia with several advantages. (Thomas Peel Dunhill, 1912).

However, the improvement in monitoring system, airway management, and anaesthetic techniques have offered to do thyroid surgery exclusively under general anaesthesia. However, renewed interest in loco-regional techniques have emerged with the development of minimally invasive surgery and ultrasound-guided nerve blocks. Paul Lo Gerfo was a pioneer in modern thyroid surgery under cervical plexus block, demonstrating its feasibility in outpatient settings. (Paul.l.G et al, 1991). In theloco-regional anaesthesia,bilateral superficial cervical plexus blocks combine with local infiltration along the anterior border of sternocleidomastoid muscle and planned incision site is accompanied by conscious sedation.(Milan.S.A.et al.2013). Anaesthetic drugs-midazolam,propofol and fentanyl are routinely used as sedatives that provide desired sedative level with fast recovery. This approach avoids endotracheal intubation and enables real-time assessment of recurrent laryngeal nerve function. This study evaluates feasibility, safety, and cost-effectiveness of thyroidectomy performed under loco-regional anaesthesia with monitored anaesthesia care.

2. Material and method

This is a hospital-based interventional descriptive study was conducted at No. (2) Military Hospital (500-Bedded), Yangon, Myanmar, from May 2023 to May 2024 after approval from the Ethical Review Committee of the Defence Services Medical Academy. Patients who underwent thyroidectomy were selected according to out of exclusion criteria (unable to communicate, anticipated difficult airway, retrosternal goiter, morbid obesity, previous neck surgery). The demographic data (age, indication for surgery) was recorded. All patients were sedated with midazolam(0.03mg/kg) and fentanyl 20 µg. Then, ultrasound-guided bilateral superficialcervical plexus block was performed using: 0.5% plain bupivacaine (4 mL), 2% lignocaine with adrenaline 1:200,000 (4 mL) (total 8 mL per side). Voice testing was performed after one site block to assess recurrent laryngeal nerve function. Infiltration of 0.25% 10ml along the anterior border of sternocleidomastoid muscle to block the anterior terminal branches of transverse cervical nerve and 1% lignocaine 5ml at planned incision site. Then, the patient sedation level was maintained (Wilson sedation score 2-3) with intermittent bolus dose of propofol and fentanyl. The position of the patient was important to maintain minimal neck extension with face exposure. Oxygen supply was 2-4L/min with nasal catheter. NIBP, ETCO2 ,ECG ,SpO2 were monitored continuousely. After that the operation was started. The surgeon gave top up 1% lignocaine with adrenaline (5ml) before dissection of the anterior pole of thyroid gland which is not covered by superficial cervical plexus block. The local anaesthetics dose is precalculated not to exceed the maximum recommended dose. Intraoperative discomfort (pain, coughing, movement), voice changes, conversion to GA are primary outcomes. Patient and surgeon satisfaction (2 = satisfied, 1 = so-so, 0 = unsatisfied) are secondary outcomes.

Figure (1). Ultrasound Guided Superficial cervical pluxes block

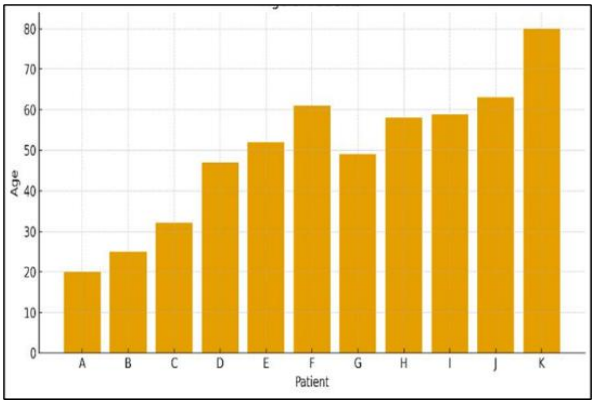

Figure (2) Age of the patients

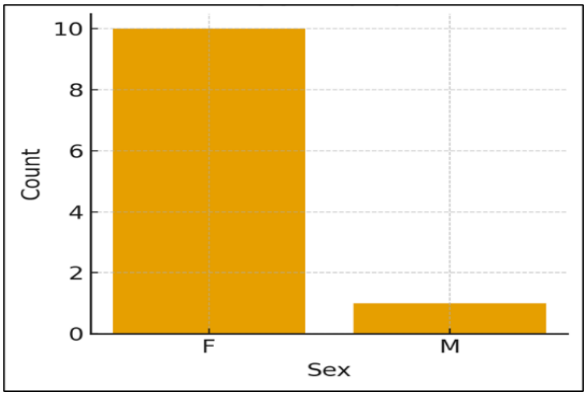

Figure (3) Sex Ratio

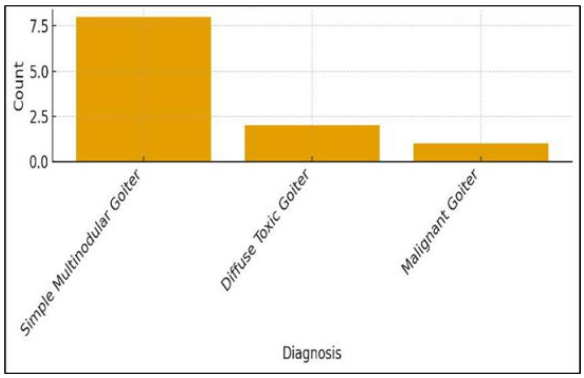

Figure (4) Diagnosis

DOI: 10.5281/zenodo.18935234

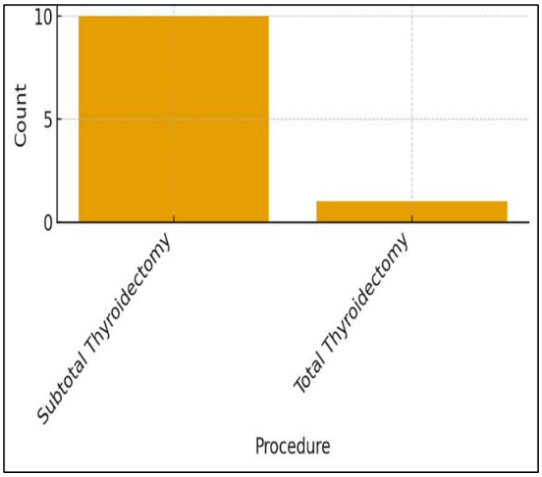

Figure (5) Procedures

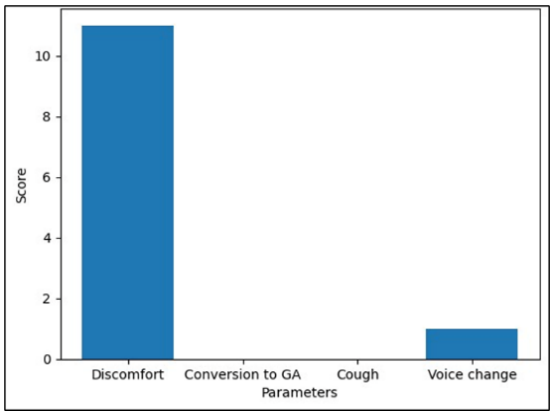

Figure (6) Perioperative complications

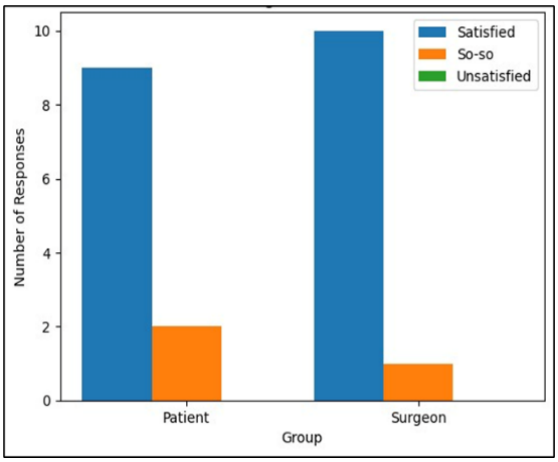

Figure (7) Patient and surgeon satisfaction scores

3. Results

This study included 11patients (10 females,1 male). Figure (2 and 3) showed the demographic data of patients. The mean age was 44 years (20–80 years). The one patient was carcinoma thyroid, two was diffuse goiters and 8 multinodular goiters. The surgical procedures in this study group were 10 subtotal thyroidectomy and 1 total thyroidectomy. The outcomes were shown in Figure 6 and 7. No patient needed conversion to general anaesthesia. One patient encountered transient hoarseness of voice. The surgeon gave satisfied for 10 patients and so-so for 1 patient. The nine patients gave satisfied and two patients gave so-so for this technique.

4. Discussion

Most thyroid surgery is performed under general anaesthesia with endotracheal intubation, which provides a motionless surgical field, a secured airway, analgesia and amnesia for a comfortable operative experience for patients. As anaesthetic techniques have advanced, thyroidectomy under local anaesthesia is typically restricted to patients with contraindications to general anaesthesia or those in low-resource region. Surgeon still lean toward thyroidectomy under general anaesthesia. Common minor complications of general anaesthesia include lethargy, nausea and vomiting, throat discomfort and postoperative pain. Consequently, in recent decades thyroid center has reintroduced loco-regional anaesthesia with sedation for thyroid surgery (Levay et al., 2020). A comparative study of thyroidectomy under local versus general anaesthesia in Uganda: fifty-eight patients divided randomly into two groups. No significant differences in postoperative complications or patient satisfaction. This research findings support thyroidectomy under local as cost-effective in low resource setting.(Umaru K,et al, 2025) In the present study, a total of 11 patients maintained Wilson sedation score 2 and 3. (allowing patients to be easily aroused and cooperative when stimulated). Deep sedation may lead to the incorporation and compromise of the airway. All patients are tolerable to some discomfort, one patient experienced hoarseness of voice and no patient needed to convert general anaesthesia . The operation room turnover is rapid as the patient is well conscious and maintains airway immediately after operation. Nine patients are satisfied with this anaesthesia technique and two patients feel so-so. The surgeon also satisfied for ten surgeries with this method. In the present study, an 80 year old lady who has medical comorbidity is not well controlled hypertension with IHD and type 2 diabetes successfully underwent subtotal thyroidectomy for multinodular goitre under loco-regional block with monitored anaesthesia care.This anaesthetic technique cannot eliminate the traction and tracheal manipulation. The same experienced surgeon performed all procedures to minimize traction-related discomfort. Loco-regional anaesthesia also aligns with the concept of “green anaesthesia” by reducing volatile anaesthetic use and environmental emissions.

5. Conclusion

Bilateral superficial cervical plexus block under monitored anaesthesia care for thyroid surgery has been done easily and as safe as under general anaesthesia. It is also cost-effective due to short hospital stay. The technique provides real-time voice monitoring. This technique is particularly beneficial for high-risk patients unsuitable for general anaesthesia. Additionally, loco-regional techniques contribute to green anaesthesia by lowering the use of volatile anesthetics and emissions.

6. Conflict of interest

The authors declare no conflict of interest.

7. Ethical approval

The study was ethically approved by the Ethical Review Committee of the Defense Services Medical Academy, Yangon, Myanmar.

References

1. Bernadett. L, Kiss, A., Zelenai, F., Elek, J.,Oberna,F.Thyroid surgery in local anaesthesia: Renewal of an old method. Journal of Thyroid Disorders and Therapy.2020 july
2. Kathryn.s,Jhon.A.C,MaryDiGiogi.Kennet h.C,Shinf.LoGaefo.P;Thyroidectomy using local anaesthesia;a report of 1,025 cases over16years. Journal

DOI: 10.5281/zenodo.18935234

of the American College of Surgeons,2005Sept;201(3);375-85
3. Lo Gerfo, P., et al. Outpatient and short-stay thyroid surgery. Head & Neck.1991,13(2),97–101.
4. Milan.S.A,Leslie,Julie.A.S.Thyroidecto-my under local anaesthesia. Current Surgical Report.2013 December 11;2;37
5. Ozgün, M., Hosten, T., Solak, M.Effect of bilateral superficial cervical plexus block on postoperative analgesic consumption in patients undergoing thyroid surgery.Cureus,2022:14(1),e21212.
6. Sunil, K. C., Divya, H. R., Singh, S., & Sunitha: Thyroidectomy under local anaesthesia: A viable, safe, and effective alternative to general anaesthesia. Journal of Head and Neck Physicians and Surgeons, Jan-Jun 2020,13(1), 82–86.
7. Umaru K, Fualal.J.O, Thyroidectomy under local versus general anaesthesia in health setting in Uganda; a randomized prospective equivalence single-blind controlled trial. BMC Surg.2025 Feb 19:25;73
8. Wilson, L., Malhotra, R., Mayhew, D., & Banerjee, A.The analgesic effects of bilateral superficial cervical plexus block in thyroid surgery: A systematic review and meta-analysis. Indian Journal of Anaesthesia.2023, 67(7), 579–589.
9. Yang, X., Yang, H., Li, M., Zhu, K., Shen, L.Xie,C. Effect of ultrasound-guided bilateral superficial cervical plexus block versus perioperative intravenous lidocaine infusion on postoperative quality of recovery in patients undergoing thyroidectomy: A randomized double-blind

DOI: 10.5281/zenodo.18935234