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Thyroidectomy Under Local Anesthesia

Ch. Mohammad Kamran,[1]* Mohammad Amjad,[1] Sajjad Kazami [2]

ABSTRACT

Objective — *To find effectiveness of thyroid surgeries under local anaesthesia when the patients had contraindication to general anesthesia.*

Study design — *Descriptive case series.*

Place & Duration of study — *Department of Surgery, Jinnah Hospital / Allama Iqbal Medical College Lahore, from January 2004 to March 2015.*

Methodology — *A total of 100 patients were included. For infiltration anesthesia, lignocaine and bupivacaine were used. Two ampoules of lignocaine and two ampoules of bupivacaine (40 ml each) were taken and 160 ml normal saline was added in it. Total amount of infiltrate was 200 ml into which 0.5 ml of adrenaline 1/1000 was added. Total adrenaline concentration came to be 1/400000 in 200 ml. Before draping the patient, local anaesthesia was infiltrated starting from the incision, to all the area below from suprasternal notch to above the thyroid cartilage and laterally to anterior border of sternocleidomastoid. Patients were given tablet alprazolam (Xanax) 0.5 mg six hours prior to surgery. Just before the operation intramuscular injection diclofenac (Dicloran) 75 mg and intravenous antibiotics were also administered.*

Results — *The study population included 81 females and 19 males with the mean age of 35+5 year. The mean procedure time was 105 minutes. Procedures included subtotal bilateral thyroidectomy (n=31), lobectomy (n=46) and total thyroidectomy (n=23). Postoperative complications included bleeding (n=2). Patients showed full self-dependency within 4 to 6 hours and remained under medical surveillance for 48 hours.*

Conclusions — *Use of local anesthesia in thyroid surgery makes it cost effective with less postoperative pain. Early smooth recovery was also observed. Thyroid surgeries under local anesthesia may be considered a safe alternative where general anesthesia is not available or contraindicated for medical reasons.*

Key words — *Thyroidectomy, Local anesthesia, Lignocaine.*

INTRODUCTION:

Local anaesthetics (LA) are used to achieve a reversible localized sensory loss in order to abolish pain and facilitate surgical procedures. The techniques include topical application, ring blocks, nerve block or infiltrative anesthesia.[1] When compared with general anaesthesia, it is safe, readily available, easy to apply, and cause minimum systemic effect. Surgeons are trying to use local anesthesia more frequently when considered feasible.[2]

Defective functioning of thyroid gland accompanied with enlarged gland (goitre) is commonly encountered in surgical practice.[3] Partial and / or total thyroidectomy is one of the most frequently performed surgical procedures. Long standing large goiter and retrosternal goitre put pressure and compress trachea and adds to morbidity. The surgical intervention is inevitable in such cases.[4]

[1] Department of Surgery, Allama Iqbal Medical College Lahore
[2] Department of Anesthesia, Allama Iqbal Medical College Lahore

Correspondence:
Dr. Ch. Mohammad Kamran [1]*
Department of Surgery
Allama Iqbal Medical College Lahore
E mail: chmkamran@gmail.com

In the start of 20th century, total or subtotal thyroidectomy were performed under local anesthesia but with availability of safe anesthetic agents for general anesthesia this practice was changed. Local anesthesia has the advantage of being applied selectively to surgical field with minimum systemic action. Patient either remains fully conscious or semi sedated with the use of anxiolytic.[5] Depending upon the chemical structure, local anaesthetics are divided into ester and amide groups.[6,7] General anesthesia has its limitations and may not be appropriate in patients with cardiac complications. Thus surgeons started reverting towards regional anesthesia for thyroidectomy as it offered more safety, fast postoperative recovery and minimum hospital stay.[8]

Many international studies reported that patients at high risk from general anesthesia underwent successful thyroidectomy under local anesthesia with minimum postoperative complications. Keeping in view the significance and advantages of local versus general anesthesia, for the last one decade the idea to use localized anesthesia for thyroid surgeries has been continuously revisited.[9] The aim of the present study was to perform thyroidectomy under local anesthesia on the patients who were considered at high risk for general anesthesia to find out the effectiveness of this approach.

METHODOLOGY:

This case series was conducted in the Department of General Surgery, Jinnah Hospital / Allama Iqbal Medical College Lahore as well as private hospitals of Lahore from January 2004 to March 2015. Well motivated, cooperative patients were included after taking written informed consent. All patients with goiter had some contraindication to use of general anesthesia. Before the operation, patients were informed about the procedure. To alleviate anxiety all patients were given tablet alprazolam (Xanax) 0.5 mg six hours prior to surgery. Just before the surgery intramuscular injection of diclofenac sodium (Dicloran) 75 mg was given as well as appropriate antibiotics were also started intravenously.

Infiltrative anesthesia technique was employed. For infiltration anesthesia, 0.5% lignocaine (10 ml) and 50 mg bupivacaine with (10 ml) were used. Two ampoules each of lignocaine and bupivacaine (40 ml each) were diluted in 160 ml normal saline into which 0.5 ml of adrenaline 1/1000 was added. The total adrenaline dilution was 1/400000 in 200 ml. In most of the cases 70 to 100 ml of this solution was enough for the surgery.

In operation theater after scrubbing local anesthesia was infiltrated at the incision site and also into the area from suprasternal notch to above the thyroid cartilage and laterally to anterior border of sternocleidomastoid. A 10 ml syringe with 27 G needle was used to infiltrate the local anesthesia. The infiltration was done slowly. No sedative was added. In four anxious patients single intramuscular dose of nalbuphine 20mg was used. A suction drain was placed in all the patients and was removed 24 to 48 hours after surgery. All the patients were responding during operation by answering about their well-being.

RESULTS:

A total of 100 patients were included. There were 81 females and 19 males with the mean age of 35+5 year. Partial or total thyroidectomy was performed in 100 patients. The mean time of the procedure was 105 minutes. The most common (n=46) surgical procedure performed was lobectomy (table-I). Surgical procedure remained uneventful. Preoperatively, three diagnosed bronchial asthmatic patient developed bronchospasm which was relieved by appropriate bronchodilators. Three patients showed features of hypocalcaemia which responded to intravenous calcium gluconate infusion and settled within 24 hours of surgery. Rest of the patients did not have any preoperative complication.

Postoperatively, only two patients had bleeding within first two hours and were managed successfully. Patients were allowed for full self-dependency within 4 to 6 hours postoperatively and remained under medical surveillance for 48 hours. Skin stitches were removed on fifth postoperative day. None of the patients developed hoarseness of voice. Patients remained in ward from 24 to 48 hours and were fully ambulatory postoperatively. No wound related complication occurred at postoperative follow up. Extreme satisfaction was reported by the study participants.

Table I: Surgical Procedures Performed in Patients with Goiter

Surgical Procedures	No. of patients (n)
Subtotal bilateral thyroidectomy	31
Lobectomy	46
Total thyroidectomy	23

DISCUSSION:

Thyroid surgery under local anesthesia is a viable option. The current study provided this evidence. Multiple studies can be found on the use of local anesthesia along with sedatives. Wilson sedation

score of these cases ranged between 1 and 2.[10,11] In index study thyroid surgeries were performed only under local infiltration anesthesia and no sedative was given. All the patients were successfully operated upon and discharged from the hospital in good and satisfactory condition. All of the patients were pleased with the surgical procedure under local anesthesia. The regular follow up revealed that none of them developed any complication later on.

By employing LA many complications can be avoided that may have significant consequences if general anesthesia is used like hazards of laryngoscopy and endotracheal intubation, side effects of anesthetics used, accidental resection of recurrent laryngeal nerve (this can be taken care of by continuous voice monitoring of the patient while under LA), as well as cardiac changes. [8,12]

In present study in spite of thorough counseling few patients showed anxiety and panic which was successfully dealt with by counseling. The local anesthesia for thyroidectomy was cost effective. It also lessened the burden on postoperative care in surgical ICU which is must in cases operated under general anesthesia. There was less postoperative pain and greater patients' satisfaction. Patients could return to their job early as well. Hence, surgery for goiter under local anesthesia may be considered as a safe alternative option when general anesthesia is not available or contraindicated for other comorbids.[13]

There are few drawbacks of local anaesthesia which cannot be ignored. In LA patients can feel the surgical procedure like pull and pressure at the site of surgery.[14] Few patients have claustrophobia and cannot tolerate a team of doctors including anesthetists approaching them for surgery as well as monitoring the effectiveness of local infiltrative anesthesia and airway so closely.[15,16] One of the commonest side effects of GA is nausea and vomiting during recovery phase and none of the patients included in this study showed these features even 24 hour after thyroid surgery under LA.[17]

CONCLUSIONS:

Thyroid surgical procedures can be performed under local anesthesia when there are contraindications for the use of general anesthesia and results are comparable with added advantage of being cost effective.

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