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THE EFFECTIVENESS OF CERVICAL REGIONAL ANESTHESIA IN THE CASE OF TOTAL THYROIDECTOMY A CASE REPORT IN JORDAN AT PRINCE HASHEM BEN ABDULLA II HOSPITAL

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ABSTRACT
Objective: to assess the effectiveness of cervical regional anesthesia for total thyroidectomy procedure. Case presentation and Method: It is a case report study of 27 years female patient, with free medical and surgical history, who was suffering from a 3cm mass on the left thyroid lobe, the goiter was nonfunctioning but the radiological test and pathological Fine Needle Aspiration showed papillary thyroid cancer, confined to the left lobe without lymphadenopathy. The decision was made after obtaining patient consent and the surgeon to do a total thyroidectomy procedure under regional anesthesia. The procedure was performed on October 6, 2024, at Prince Hashem Bin Abdulla II, in Aqaba, Jordan. After preoperative management, all lap results and radiological tests were performed and registered. The patient was assessed by a surgeon, endocrinologist, and anesthetist before the procedure. The technique was performed after neck scrubbing and toiling, in a supine position with an extended neck, by blocking the deep and superficial cervical plexus bilaterally through an injection of 10-12 ml of 2% lidocaine and fully monitoring the patient throughout the procedure. The patient was awake throughout the procedure, the duration of surgery was one hour, and the patient was followed after the procedure in the recovery room and in the general ward. Result and conclusion: using regional anesthesia instead of general anesthesia carries a low complication rate with good and early patient recovery.

KEYWORDS: regional anesthesia, cervical block.

INTRODUCTION
Anesthesia is divided into four major types, General anesthesia, regional anesthesia, Local anesthesia, and monitored anesthesia care (Sedation). Regional anesthesia is a special type of loco-regional anesthesia used in certain procedures to avoid general anesthesia, facilitate early recovery, and minimize the complications of general anesthesia.[1]

The difference between local and regional anesthesia is when the local anesthetic injected directly at the site of surgery is called local anesthesia, while if the injection is proximal at the nerve that supplies a certain area it's then called regional anesthesia.[2]

Cervical plexuses are a special nervous network that innervates Deep and superficial cervical muscles and neck skin, cervical plexus is originated from the anterior rami of C1-4, its superficial carrying the sensory and deep cervical plexuses that carry the motor fiber. So, blocking the deep and the superficial cervical plexuses will anesthetize the skin of the neck and the cervical muscles.[3]

Performing total thyroidectomy under regional anesthesia isn't common and usual surgery, the debate about the effectiveness of regional anesthesia is little, but overall results may improve perioperative monitoring with early recovery and less anesthetic time.[4]

Total thyroidectomy is a special type of procedure that involves a 5 cm skin incision in the midline lower neck, then splitting of strap muscle with the opening of peritracheal and thyroidal layers, then and after preserving recurrent laryngeal nerve and parathyroid glands complete and total thyroidectomy done.[5]

In general, most total thyroidectomies are performed under general anesthesia, in this report we present a case of a single female who is 27 years old and was suffering from papillary thyroid cancer and the decision was to do the procedure under regional anesthesia by blocking the deep and the superficial cervical plexuses.

Case Presentation and Methodology: our report is a case study, the history of the presenting illness is as follows:
A 27-year-old female patient was suffering from a neck mass. There were not any relevant symptoms and signs of hypo or hyperthyroidism, the surgical and medical history is free. The thyroid function tests showed normal results, **table 1**.

Table 1: thyroid function test Units Range.

Free T4	19.4	Pmol\L	(11-21)
Free T3	4.8	Pmol\L	(3.1-6.1)
TSH	1.4	Mu\L	(0.5-5.0)

Ultrasound findings were hypoechogenic mass measuring 3 cm rounded with spiculated margin and microcalcifications in the left lobe, normal featured right lobe and there was no cervical lymphadenopathy, TIRAD 5 see **table 2**.

Table 2: TI-RADS.

Category	Points	Suspicion	recommendation
TIRADS 1	0	*Benign*	No FNA
TIRADS 2	2	*not suspicious*	No FNA
TIRADS 3	3	*mild suspicious*	FNA if MORE than 2.5cm
TIRADS 4	$4-6$	*moderate suspicious*	FNA if more than 1.5cm
TIRADS 5	*more 7*	*highly suspicious*	FNA if more than 1 cm

Then the FNA (fine needle aspiration) was taken.

TI-RAD is a thyroid imaging reporting and data system; that describes the suspicion index of the presence of malignancy. (6)

The result of FNA confirmed the diagnosis of papillary thyroid cancer. Then the patient is planned for elective total thyroidectomy after full preoperative preparation with consultation of endocrinologist, cardiologist, and pulmonologist.

Procedure: After scrubbing and toiling of the neck, the position was supine with extended neck, local anesthetic was infiltered in the skin opposite to cervical transverse process C2-C6, then the blocking needle was connected to the syringe of local anesthetic, palpation of the mastoid process along the posterior border of sternocleidomastoid muscle to chassaignac tubercle of 6th cervical vertebra and the line was drawn, then identification of injection sites along the line in 3 sites in front of C2, C3, C4 (2cm,4cm,6cm below mastoid process respectively), we choice 2% lidocaine as a local anesthetic (choices of anesthetics {table3}) and injection of 4ml at every level and bilaterally. The orientation of the needle is perpendicular to the skin and slightly caudally, maximum advancement of the needle is 2.5 cm to avoid spinal cord injury. (7)

Table 3: choices of local anesthetics for deep cervical block.

	Onset (min)	Anesthesia (h)	Analgesia (h)
1.5% Mepivacaine	10-15	2-2.5	3-6
2% Lidocaine	10-15	2-3	3-6
0.5% Ropivacaine	10-20	3-4	4-10
0.25% Bupivacaine	**10-20**	**3-4**	**4-10**

Source: NYSORA, Jerry D. Vloka, Ann-Sofie Smeet.

After that the surgical procedure was completed smoothly within one hour and the patient was fully oriented and awake. He started a normal diet 2 hours after surgery and was kept on tramadol 50mg per oral 3 times daily. The patient was discharged from the hospital the next day without any complications.

Ethical consideration: ethical approval was obtained from the Institutional Review Board of King Hussein Medical Hospital.

RESULTS

The results were patient full satisfaction, with early recovery and short hospitalization, and the patient discharged on the 1st day postoperative. Throughout the procedure pain score was assessed every 30 minutes and doesn't exceed score 3 according to Numerical Rating Scale (NRS), (**Chart 1)**.

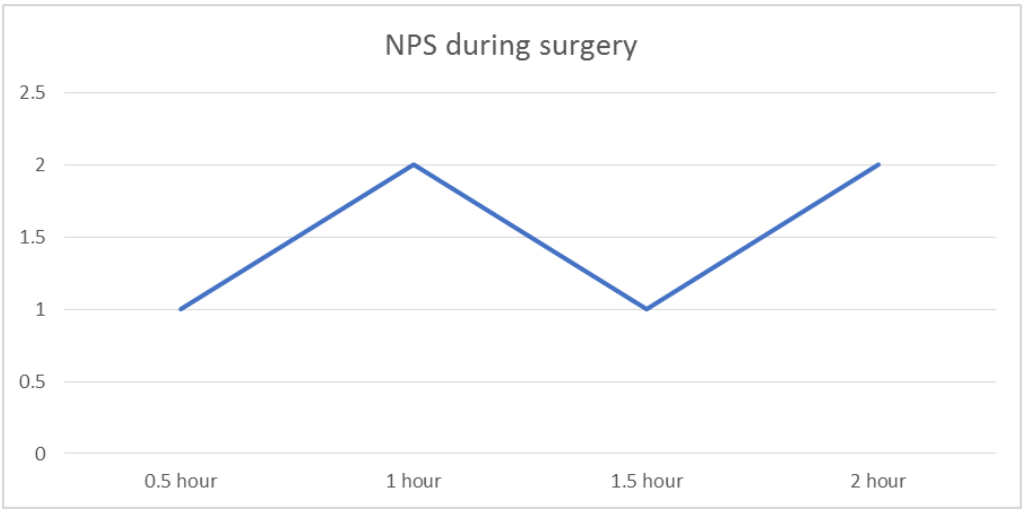

Chart 1: (Numerical pain score during surgery)

NPS, Numerical pain score.

After surgery, the pain score was assessed every 2 hours which ranged between the score of (2-4) with stable heart rate and vital signs **(Chart 2).**

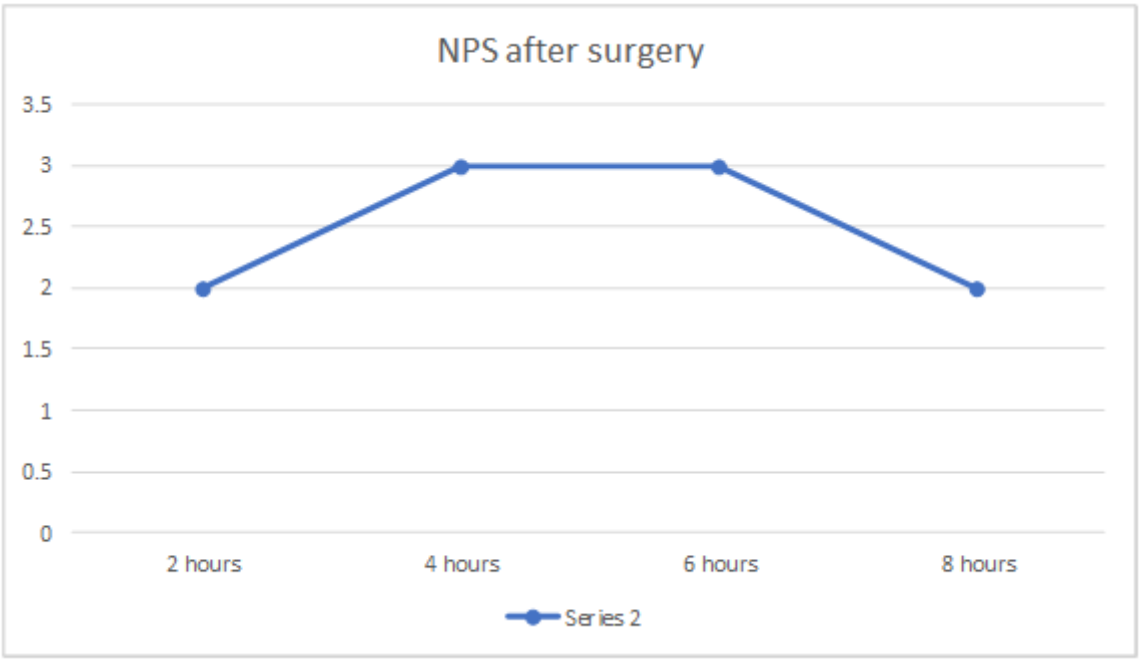

Chart 2: Numerical pain score after surgery.

NPS: Numerical pain scoring system

DISCUSSION

The decision for regional anesthesia should be taken integrally between the surgeon, anesthetist, and endocrinologist and after consent approval from the patient as described by Buhre W, Rossaint R in perioperative management and monitoring in anesthesia.[8]

Regional anesthesia improves general outcomes with low sustained pain intensity, just like the results of an article published by Hopkins P.M and his colleague[9], at the same time we found short hospital stays with regional anesthesia and less cost than general anesthesia which also detected in the study written by Vaniyapong T., Chongruksut W., Rerkasem K.[10]

The risk of complication is still possible in any interventional procedure. Cervical plexus block may induce nerve injury through direct nerve injection, as described in detail in Acta Anesthesiol Scand, by Selander D, Dhuner KG, Londburg G.[11]

CONCLUSION

Regional anesthesia could be a good alternative to general anesthesia for total thyroidectomy. The postoperative recovery time, the hospitalization period,

and patient satisfaction are all better in the case of regional anesthesia.

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