

SURGICAL TREATMENT OF AXILLARY OSMIDROSIS UNDER SERRATUS PLANE BLOCK A CASE REPORT

Kyeongyoon Woo*

Department of Anesthesia and Pain Medicine, Daegu Fatima Hospital, Daegu, South Korea *Corresponding Author

Hyunkyum Kim

Department of Anesthesia and Pain Medicine, Daegu Fatima Hospital, Daegu, South Korea

ABSTRACT

Serratus Plane Block can be used as one of the methods of analgesia in surgery performed on the lateral thoracic wall and breast. We performed Serratus Plane Block in an 18-year-old male undergoing surgery for osmidrosis to confirm that it reached anesthetic level sufficient to perform surgery without local anesthesia. Although the surgery was performed by performing general anesthesia because it did not reach a sufficient anesthetic level, the pain scale decreased significantly after surgery. Thereafter, if the anesthetic level can be reached enough to allow a surgical procedure by changing the dose and volume of the anesthetic agent or using it with local anesthesia, Serratus Plane Block could be used as a meaningful method of analgesia when performing osmidrosis surgery.

KEYWORDS : Serratus Plane Block, Ultrasonography

1. INTRODUCTION

Surgical treatment of axillary osmidrosis is a commonly used treatment method because it has fewer recurrences than non-surgical treatment. Local anesthesia or general anesthesia is used as an anesthetic method for surgery, and each anesthesia method has limitations. In the case of surgery using local anesthesia, limitations such as insufficient anesthesia, edema and local tissue necrosis at the surgical site, and possibility of nerve injury were reported. When general anesthesia is performed, changes in vital signs of patients and the possibility of cardiopulmonary complications during anesthesia are well known. [1] [2]. In the case of surgery performed on breast or axilla lesions, patients may complain of acute pain or persistent chronic pain. [3] For this reason, many surgeons prefer to perform surgery under regional anesthesia, and the use of Serratus Plane Block in surgery such as thoracoscopic surgery and breast surgery is increasing recently as regional analgesia. [4] [5]

We report a case that the effectiveness and possibility of Serratus Plane Block as regional anesthesia for axillary osmidrosis.

2. Case presentation

2.1. Patient information

An 18-year-old man visited our plastic surgery department complaining of both axillary foul odors that lasted for 5 years. The patient was diagnosed with osmidrosis and decided to undergo surgical treatment. The patient has no specific medical and medication history. According to the surgical plan, surgeon requested general anesthesia, but the patient wanted another method of anesthesia due to concerns about general anesthesia. Therefore, we explained to the patient about the Serratus Plane Block as a regional anesthesia and obtained consent from the patient. In addition, we have described the possibility of general anesthesia when regional anesthesia does not reach sufficient anesthesia.

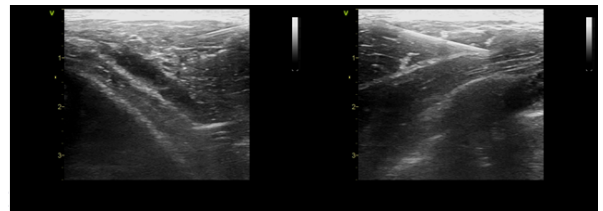
Anesthesia

Before entering the operating room, a Serratus Plane Block was performed, and the range of sensory changes and analgesic effect were evaluated. If sufficient anesthesia was not reached, it was decided to perform general anesthesia.

2.1.1. Regional anesthesia : USG guided-Serratus plane block

The patient was placed in the lateral decubitus position under monitoring of blood pressure, oxygen saturation, and electrocardiogram. The patient's arm was positioned above the head, and the anesthesiologist placed it on the back of the

patient to perform anesthesia. Anesthesia was performed using ultrasound, and a linear probe was placed perpendicular to the mid-axillary line at the patient's 3rd and 4th rib level. Using a 25 gauge 80-mm needle, the needle was introduced into the posterior to anterior by in-plane method. After placing the needle above the serratus anterior muscle at the 3rd and 4th rib level, 10cc of 1% Lidocaine and 10cc of 0.5% Ropivacaine were injected into both sides. (figure. 1).



After anesthesia, the patient's blood pressure, oxygen saturation, and electrocardiogram did not show any special changes. After 30 minutes of anesthesia, we checked the patient's sensory changes.

There was a change in sensation at the surgical site, but the anesthesia was not reached enough to perform the operation. (figure. 2).

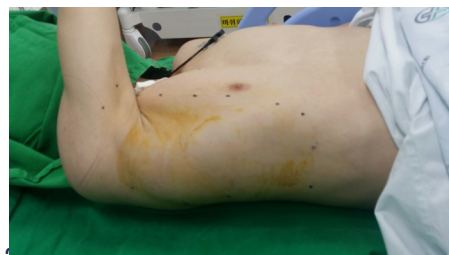


Figure 2

2.1.2. LMA mask General anesthesia

After entering the operating room, it was decided to perform general anesthesia due to insufficient regional anesthesia. Induction was performed by injecting propofol 120mg and rocuronium 30mg, and a 4 size Proseal Laryngeal Mask Airway was used to maintain the patient's airway. General anesthesia was maintained with 2% sevoflurane, and no additional opioid was used. During general anesthesia, there was no specific change in vital sign, and no specific complication occurred.

2.2. Operation

the surgery was performed with subcutaneous tissue curettage & dermal shaving, and no additional local anesthesia and lidocaine injection were performed. The surgery was completed after 2 hours, and there were no specific events of pain response such as blood pressure, heart rate elevation during that time

2.3. Postoperative analgesia

After the surgery was completed, it was decided to use an opioid for pain control when the patient complain of pain with an NRS (Numeric Rating Scales) score of 3 or higher during recovery of anesthesia. However, the patient complained of only mild pain with an NRS score of 0-1, so we did not perform additional pain control and decided not to use Patient Controlled Analgesia (PCA) equipment. On the 2nd day after surgery, the patient complained of slightly increased pain with an NRS score of 2, but was tolerable, and took Non-Steroidal Anti-Inflammatory Drugs.

3. Discussion

In the results of many studies, intervention is performed through procedures such as thoracic epidural block or paravertebral block to control pain after surgery performed on hemithorax such as mastectomy and thoracoscopic surgery. [5] [6] [7]. However, these procedures must be attempted by an experienced doctor, and a number of complications have been reported. [8]

Among them, the Serratus Plane Block, which blocks the lateral branches of the intercostals nerves of the hemithorax, has the advantage compared to thoracic epidural analgesia, avoiding autonomic blockade and complications related to pleura, central neuraxial structures. In addition, the Serratus Plane Block has the advantage that it is easy to identify anatomy when performing anesthesia using ultrasonography. [8] Therefore, as a tool for post-operative pain control, the Serratus Plane Block can be used as one of the methods to achieve effective analgesia while reducing complications. In this case, Serratus Plane Block was performed instead of thoracic epidural block or paravertebral block as regional anesthesia and analgesia for axillary level.

As a result, the analgesic effect of the Serratus Plane Block could be confirmed, but the sensory block was not reached enough to proceed with the surgical procedure. As the drug spread, it was confirmed that there was a sensory change in the target skin area. However, when considering the NRS score during recovery, it is thought that sufficient anesthesia to perform surgery was not reached due to the difference in block depth due to the amount and concentration of local anesthetics used. Therefore, the selection of local anesthetics, concentration, and dose can be established through more cases and applied to osmidrosis surgery. However, because the plane block can also cause local anesthetic systemic toxicity (LAST) by the local anesthetic agent used in the block [9], the doctor will need to be careful about the procedure. If a method to provide analgesia necessary for osmidrosis surgery is established, it is thought that the Serratus Plane Block alone can be an effective anesthesia method for osmidrosis surgery without performing general anesthesia or local anesthesia.

6. Conclusion

In this case, it is considered difficult to perform the Serratus Plane Block alone as an alternative to general anesthesia or neuroaxial block during surgery in the axillary area, but further research is needed. However, the outcome for postoperative analgesia was relatively effective, so it could be sufficiently used as an alternative to one of various postoperative pain control methods.

REFERENCES

1. R Blanco, T Parras, J G McDonnell, A Prats-Galino. Serratus plane block: a

- novel ultrasound-guided thoracic wall nerve block. *Anaesthesia*. 2013 Nov;68(11):1107-13
2. Robert A Yoho, Jeremy J Romaine, Deborah O'Neil. Review of the liposuction, abdominoplasty, and face-lift mortality and morbidity risk literature. *Dermatol Surg*. 2005 Jul;31(7 Pt 1):733-43; discussion 743.
3. Kenneth Geving Andersen, Henrik Kehlet. Persistent Pain After Breast Cancer Treatment: A Critical Review of Risk Factors and Strategies for Prevention. *J Pain*. 2011 Jul;12(7):725-46.
4. R Blanco, T Parras, J G McDonnell, A Prats-Galino. Serratus plane block: a novel ultrasound-guided thoracic wall nerve block. *Anaesthesia*. 2013 Nov;68(11):1107-13
5. Diab Fuad Hetta, Khalid Mohammed Rezk. Pectoralis-serratus interfascial plane block vs thoracic paravertebral block for unilateral radical mastectomy with axillary evacuation. *J Clin Anesth*. 2016 Nov;34:91-7.
6. E P Lynch, K J Welch, J M Carabuena, T J Eberlein. Thoracic epidural anesthesia improves outcome after breast surgery. *Ann Surg*. 1995 Nov;222(5):663-9.
7. Liping Wang, Yu Wang, Xi Zhang, Xidong Zhu, Guonian Wang. Serratus anterior plane block or thoracic paravertebral block for postoperative pain treatment after uniportal video-assisted thoracoscopic surgery: a retrospective propensity-matched study. *J Pain Res*. 2019; 12: 2231-2238.
8. Asmaa Elsayed Khalil, Nasr Mahmoud Abdallah, Ghada M Bashandy, Tarek Abdel-Haleem Kaddah. Ultrasound-Guided Serratus Anterior Plane Block Versus Thoracic Epidural Analgesia for Thoracotomy Pain. *J Cardiothorac Vasc Anesth*. 2017 Feb;31(1):152-158.
9. Kariem El-Boghdady, Amit Pawar, Ki Jinn Chin. Local anesthetic systemic toxicity: current perspectives. *Local Reg Anesth*. 2018; 11: 35-44.