



## A Case Study of Fibroadenoma Surgery under Serratus Anterior Plane Block

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### Abstract

*Surgery on the anterior chest wall is common especially breast surgeries & can be associated with considerable post operative discomfort & pain. Although various techniques are available for conducting surgeries on anterior chest wall and especially breast, the hunt for techniques that involves less time, requires less resources and gives proper results has always been there. Serratus anterior plane block has emerged as one good alternative. In the present study on 15 patients, we found this method to be effective, and less time consuming and less cumbersome as compared to other alternative procedures that we have for conducting fibroadenoma breast surgeries.*

### Introduction

Serratus anterior plane block is the technique of regional anaesthesia for breast surgeries. This technique rely on placing the local anaesthetic drug between the thoracic muscle. It is facilitated because of widespread availability of ultrasound. Blockage of lateral cutaneous branches of thoracic intercostal nervous (T2-T12) provides analgesia to the anterolateral chest wall. Under ultrasound guidance, there are two potential spaces, superficial & deep underneath the serratus anterior muscle, between the muscle & intercostal nerves. Based on these findings, we have developed a new safe & easily performed regional anaesthetic block. This is designed to block primarily the thoracic intercostal nerve & to provide complete analgesia of the lateral part of the thorax so this can be a considered a viable alternative to paravertebral block & thoracic epidural analgesia. There-

fore this study was undertaken to test the effectiveness of this new technique.

### Method

This study was performed in Patna medical College Hospital from June 2017 to December 2017 in 15 patients undergoing elective minor breast surgeries. All patients were having ASA grade I & II, weight between 30-50 kg. Informed written consent was taken from every patient & informed of the potential benefits. All patients were premeditated with midazolam & glycopyrolate. The patients were placed in the supine position with arm abducted & linear ultrasound transducer (10-12 Hz) was placed over mid clavicular region in sagittal plane. Ribs were counted inferiorly & laterally, until the 5th rib identified in mid axillary line. By moving the probe into mid axillary line, the serratus plane is more superficial & easier,

making it a much simple block. Latissimus dorsi (superficial & posterior), teres major (superior), serratus anterior (deep & inferior) were easily identified by ultrasound overlying the 5th rib.

The needle (22-G) was introduced in-plane with respect to the ultrasound probe from superior-anterior to postero-inferior. The needle depth required to reach the identified region was between 1-3 cm. Then we injected 20 ml Bupivacaine in a concentration of 0.25% under & above serratus anterior muscle under continuous ultrasound guidance. After 30 min, sensory loss to pinprick was tested using hypodermic needle.

## Result

15 patients were recruited & studied.

	Age (years)	Height (cm)	Weight (kg)
Mean	22	159	47

Anterior	Lateral	Posterior
T2-T8	T2-T8	T2-T9

30 min after the injection, dermatomal paresthesia was demonstrated from T2- T8/T9 & numbness in all patients. Weak crossed-arm abduction was observed.

We defined the anterior hemithorax as arising from the anterior axillary line to sternum, the posterior hemithorax as arising from the posterior axillary line to the spinous processes of the vertebrae & the lateral hemithorax as the area in between these two.

## Discussion

We have injected the local anaesthetic drug superficial and deep underneath serratus anterior muscle provides predictable and relatively long lasting regional anaesthesia, which would be suitable for surgical procedures performed on the chest wall. This is an alternative to other regional anaesthetic techniques like thoracic paravertebral blockage; and thoracic epidural analgesia. Invasive techniques such as selective intercoastal nerve blocks and thoracic paravertebral blockage may lead to

pneumothorax & if particular attention is not paid to the procedural technique and dosage of drug that can lead to transient Horner's syndrome. These techniques have also shown to be associated with rapid rise in plasma concentration of local anaesthetic agent injected<sup>[4]</sup>. Also the central neurological side-effect profile associated with neuraxial blockage have been well documented<sup>[5-7]</sup>. Serratus anterior plane block is progression of our work and we strive to make the technique easier in its application and to lower the potential side-effect associated with injection in close proximity of vascular structures<sup>[8]</sup>.

## Conclusion

Serratus Anterior Plane block provides effective paresthesia & sensory loss below T2 till T8 dermatomes in upper to lower lateral quadrant. So Serratus Anterior Plane block proved to be an effective regional block for small breast surgeries with intra as well as post operative analgesia.

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