

**CASE REPORT – A COMBINATION OF THORACIC SPINAL ANESTHESIA AND
ERECTOR SPINAE PLANE BLOCK FOR MODIFIED RADICAL MASTECTOMY**



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ABSTRACT

Thoracic spinal anesthesia is attaining popularity in recent times as it avoids the risks and complications associated with general anesthesia. It provides good motor and sensory block, has decreased incidence of post-operative nausea and vomiting (PONV) and provides good post-operative analgesia. Erector Spinae Plane Block (ESPB) is a new and novel fascial block technique used for post-operative analgesia in breast surgeries by causing sensory blockade of multiple segments of the chest wall.

Hereby presenting the case of a 67-year-old female, who came with lump in left breast for 7 months. FNAC revealed that the lump was infiltrating ductal carcinoma. Right sided MRM with axillary lymph node dissection was planned. ESPB was performed at right T4 transverse process by landmark technique with a 23G spinal needle and 12cc of Inj. Levobupivacaine (0.25%) was injected after negative aspiration of CSF & Blood. Following this, subarachnoid block was given at T4-T5 interspace with a 25G Quincke needle and Inj. Levobupivacaine (0.5%) 1.2ml & Inj. Fentanyl 25mcg was injected after free flow of CSF was confirmed. Spinal onset of sensory block was checked after 5,10,15 minutes of block by testing for loss of sensation in the mid-axillary line from C8-T7 using a needle. The patient was hemodynamically stable throughout the procedure. VAS was considerably lower throughout the procedure and the patient did not require any intravenous analgesics.

Thoracic spinal anesthesia when combined with Erector spinae block is a safe anesthetic modality that can be employed for Modified Radical Mastectomies. This combination not only provides good sensory block, decreased complications as compared to general anesthesia, better intraoperative hemodynamics, decreased blood loss but also can provide excellent post operative analgesia for a selective subgroup of patients undergoing MRM.

Keywords – Thoracic Spinal Anesthesia, Erector Spinae Plane Block, Levobupivacaine, Fentanyl, Modified Radical Mastectomy, Breast Cancer, VAS, General Anesthesia.

INTRODUCTION

General anesthesia has been the main anesthetic modality for modified radical mastectomy (MRM) but thoracic spinal anesthesia is attaining popularity in recent times as it avoids the risks and complications associated with general anesthesia. This is also due to the fact that the Dural-spinal cord distance is widest at the mid thoracic level, thereby encouraging us to do subarachnoid block at the mid-thoracic level for MRM. It provides good motor and sensory block, has decreased incidence of post-operative nausea and vomiting (PONV) and provides good post-operative analgesia.

Erector Spinae Plane Block (ESPB) is a new and novel fascial block technique used for post-operative analgesia in breast surgeries by causing sensory blockade of multiple segments of the chest wall. It involves injecting local anesthetic along the transverse process of the vertebrae far away from major blood vessels, pleura and nerves, thereby making it a safer alternative to epidural or paravertebral blocks. Many case reports suggest that ESPB is effective in providing relief from somatic and visceral pain. Hereby, we present a case report in which we have employed these two novel techniques for anesthetic and post-operative pain management in a patient undergoing Modified Radical Mastectomy.

CASE REPORT

Hereby presenting the case of a 67-year-old female, who came with lump in left breast for 7 months. The lump was located in the upper outer quadrant of the left breast, initially small in size and gradually increased to attain the present size of 8*6 cm. The lump was non-tender, not fixed to skin/chest wall and there was no history of nipple discharge. FNAC revealed that the lump was infiltrating ductal carcinoma. Right sided MRM with axillary lymph node dissection was planned.

Pre-Anesthetic checkup was done. She had no co-morbidities, good effort tolerance and was a tobacco chewer for the past 10 years. Pulse rate was 93/min, BP was 110/70mmHg, RR was 17 and SpO₂ was 97% in Room air. The pt. had adequate mouth opening and MPC Class III. Systemic examination was normal and bilateral air entry was equal and clear. Lab investigations, Radiographical imaging and ECG were within normal limits. Taking the age of the patient into consideration and after discussing with the surgeons, it was decided to employ thoracic spinal anesthesia as anesthetic technique and ESPB for post-operative analgesia.

The patient was explained about the anesthetic procedure, informed and written consent taken. The night prior to the surgery, the patient was pre-medicated with Tab. Alprazolam 0.5mg. On the day of the surgery, the patient was shifted to the OT, duration of NPO was confirmed, multipara monitors attached, a 18G i/v cannula was secured in the Left arm, Inj. Ondansetron 4mg i/v, Inj. Midazolam 2mg i/v, Inj. Ceftriaxone 1g i/v given and intravenous fluid administration initiated. The patient was briefed about the anesthetic procedure again. Under strict aseptic precautions, ESPB was performed at right T4 transverse process by landmark technique with a 23G spinal needle and 12cc of Inj. Levobupivacaine (0.25%) was injected after negative aspiration of CSF & Blood. Following this, subarachnoid block was given at T4-T5 interspace with a 25G Quincke needle and Inj. Levobupivacaine (0.5%) 1.2ml & Inj. Fentanyl 25mcg was injected after free flow of CSF was confirmed. Post spinal anesthesia the patient was positioned supine. Spinal onset of sensory block was checked after 5, 10, 15 minutes of block by testing for loss of sensation in the mid-axillary line from C8-T7 using a needle. After adequate sensory block, surgery was conducted for 2 hours. No intraoperative sedation was required. The patient was hemodynamically stable throughout the procedure. Post procedure the level of sensory block remained to be same. The patient was shifted to Post-op ICU for further monitoring. The level of sensory block weaned off after 4 hours from the time of administration of block. VAS of the patient at 0, 1, 2, 4, 8, 16, 24 hours were 0, 0, 0, 1, 3, 2, 2, 2 respectively and the patient did not require any intravenous analgesics on post-operative day 1.

DISCUSSION

There are many advantages of using neuraxial blockade over general anesthesia like inhibition of the neuroendocrine stress response, decreased PONV and analgesic requirement.⁽¹⁾ The amount of CSF is low in the

thoracic level and the thoracic nerves are slight when compared to other segments. Thus, low amount of anesthetic agent is required to provide good and efficient blockade of these segments.⁽¹⁾

Recent studies with MRI studies revealed that the intrathecal space was wider in the mid-thoracic to lower thoracic space and also compared to the epidural space, thereby establishing a safety window for thoracic spinal anesthesia.⁽²⁾ Due to the decreased amount of drug required and good distribution and fixation of the drug pertinent to dermatomal level, thoracic spinal anesthesia can become favored in upcoming times.

One main concern with thoracic spinal anesthesia is that it can affect ventilation if a higher level of block is achieved. The diaphragm though is spared as it is innervated by C3, C4, C5 nerve roots. The lowest level of block that was achieved was T7 implying there was no motor block of the lower limbs, thus providing higher patient satisfaction.

MRM is associated with severe post-operative pain and this hampers the speedy recovery of the patient. Although various regional anesthetic techniques have been developed for analgesia, all of them have their own limitations. The complex innervation of the breast makes post operative pain management difficult. ESPB is a relatively safe technique comparable to an effect profile of retrolaminar & paravertebral blocks.⁽³⁾ It was found that

ESPB performed at T4 with 25ml of local anesthetic drug provided excellent post-operative analgesia.⁽⁴⁾ The studies suggested that the pain scores, opioid use & PONV was significantly reduced in patients who received ESPB for post operative analgesia in breast surgery.

CONCLUSION

From our study, we conclude that thoracic spinal anesthesia when combined with Erector spinae block is a safe method that can be employed for Modified Radical Mastectomies. This combination not only provides good sensory block, decreased complications as compared to general anesthesia, better intraoperative hemodynamics, decreased blood loss but also can provide excellent post operative analgesia for a selective subgroup of patients undergoing MRM.

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