Letter to the Editor

Combined Superior Trunk Block and Erector Spinae Plane Block for Scapular Resection: Amalgamation of Two Blocks for Effective Analgesia!

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ABSTRACT

Introduction: Peripheral nerve blocks (PNB) have gained widespread acceptance as technological advancements have improved accuracy, efficacy, and safety. PNBs offer many advantages to traditional anesthetic and analgesic techniques. Patients who would otherwise have excessive risks with general anesthesia can safely undergo surgery painlessly with regional anesthesia. Additionally, perioperative opioid analgesia's adverse effects can be minimized or avoided entirely while still providing superior pain control. If a prolonged blockade is a goal, peripheral nerve catheters can remain for several days to provide more extended analgesia than a single-shot block alone. The large, complex, and convoluted innervation of the scapula makes it difficult to provide surgical anesthesia for scapular surgery; a single block is insufficient. Superior trunk block (STB), is a novel brachial plexus block technique that provides surgical anesthesia with significantly rare hemidiaphragmatic paralysis. The Erector Spinae Plane block (ESPB) is a paraspinal fascial plane block in which the needle placement is between the erector spinae muscle and the thoracic transverse processes, and a local anesthetic is administered, blocking the dorsal and ventral rami of the thoracic and abdominal spinal nerves. We report the use of STB in conjunction with ESPB to provide adequate analgesia following scapulectomy.

Key Words: Erector spinae block, Ewing sarcoma, Scapular resection, Shoulder analgesia, Superior trunk block.

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INTRODUCTION

Providing surgical anaesthesia for scapular surgery is challenging due to the extensive, intricate ans complicated innervation of the scapula for which a single block cannot suffice[1]. We describe the combination of superior trunk block (STB) with erector spinae plane block (ESPB) for providing post-operative analgesia in a 14-year-old, 48 kg female, with Ewing's sarcoma of the right scapula for providing effective analgesia after right scapulectomy.

Under standard ASA monitoring, the surgery was carried out under general anaesthesia (GA) as per institutional protocol (Figure 1). Both the blocks were given at the end of the surgery, under aseptic precautions, in the left-lateral position, using a high frequency linear transducer probe (sonosite). The ESP block was given at the T2 level with the transducer placed in a parasagittal position using a 50mm needle (stimuplex) inserted in-plane in cranial to caudad direction. After confirmation of needle tip position with saline, 15ml mixture of 0.25% ropivacaine with 6mg dexamethasone was injected. For the STB, the 50mm needle was inserted, in the lateral to medial direction, superficial to the middle scalene muscle, until the needle tip was immediately adjacent to the lateral border of the superior trunk. The targeted level of drug deposition was immediately proximal to the origin of the suprascapular nerve where 5ml of 0.25% ropivacaine with 2mg dexamethasone was injected.

On extubation, she was comfortable, responding to commands, breathing well and had a smooth recovery from anaesthesia. Post-operatively, analgesia was managed with paracetamol 750mg iv 8 hourly as a part of multimodal analgesia and ketorolac 15mg iv was kept as a rescue analgesic. Post-operatively, her NRS pain scores were monitored at 1, 2, 4, 6, 8, 12 and 24 hours. The score remained below 3 without the requirement of any additional rescue analgesics.

The scapula receives complex and intricate nerve innervation from the brachial plexus. Broadly speaking, scapular innervation arises from various nerves originating from C5 to T6 roots[1]. Primarily, by the dorsal scapular

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nerve (DSN) (C5), the suprascapular (C5-C6) and the upper and lower subscapular nerves (C5-C6). It is also supplied by the upper thoracic nerves (T2-T6)[1]. The combination of nerve blocks chosen by us could effectively and specifically blunt the nociceptive response at the root levels that are needed for scapular resection.

The STB helps to cover the C5 - C6 roots, including the DSN. As the superior trunk constitutes the C5 and C6 ventral rami in a compact space, it does not necessitate a large volume of local anaesthetic[2]. Recent literature draws attention to the growing role of ultrasound-guided superior trunk block as a phrenic-sparing alternative to interscalene block due to the formation of superior trunk at a lower level[3].

The ESP block administered at T2 level provided adequate analgesia by blocking the upper thoracic nerves[4]. As demonstrated by Syal R. *et al.,* the ESP block is a safe and circumspect block as the target myofascial plane is superficial to the transverse process. LA injected in this plane diffuses not only anteriorly to the ventral and dorsal rami of spinal nerves but to the paravertebral and epidural spaces as well[5].

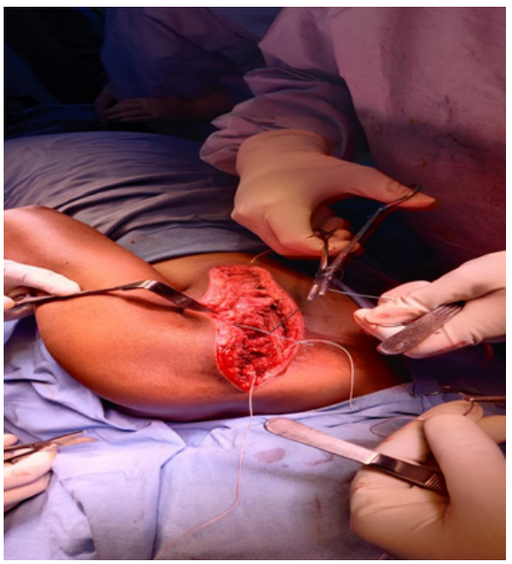

Figure 1: Patient position and extent of surgical incision.

In conclusion, understanding the extent of surgical incision, patient positioning along with the duration of the surgery helps play an important role. A combination of STB and ESPB can provide effective post-operative analgesia in patients undergoing scapular surgery.

CONFLICT OF INTERESTS

There are no conflicts of interest.

REFERENCES

1. Sonawane K, Balavenkatasubramanian J, Dixit H, Tayi H, Goel VK. (2021). Regional anesthesia for scapular fracture surgery: An educational review of anatomy and techniques. Reg Anesth Pain Med. 46:344-9.

2. Ravi R, Srinivasan S, Sivakumar RK, Senthilnathan M. (2021). Surgical anaesthesia for scapular surgery in a patient with ipsilateral thoracic injury. Indian J Anaesth. 65:630-2.

3. Kim DH, Lin Y, Beathe JC, Liu J, Oxendine JA, Haskins SC, *et al.* (2019). Superior trunk block: A phrenic-sparing alternative to the interscalene block: A randomized controlled trial. Anesthesiology. 131:521–33.

4. De Cassai A, Tonetti T. (2018). Local anesthetic spread during erector spinae plane block. J Clin Anesth. 48:60-1.

5. Syal R, Vaishnavi BD, Kumar R, Kamal M. (2020). Utility of erector spinae plane block in a complex scapular resection. Indian J Anaesth. 64:731-3.