

ESP Block-Anesthetic Management in Fragile Patient: Case Report

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Abstract

The Erector Spinae Plane Block (ESPB) is a newer regional anesthetic technique that can be used to provide analgesia for a variety of surgical procedures or to manage acute or chronic pain. ESPB is relatively easy to perform with minimal or no sedation in the pre-operative holding area. This case report shows that ESPB can be used as an effective and safe anaesthesiological alternative in fragile patients with multiple comorbidities.

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Abbreviations

ESM: Erector Spinae Muscle; TM: Trapezius Muscle; TP: Transverse Process

Introduction

The Erector Spinae Plane Block (ESPB) was first described in 2016 as a technique to manage thoracic pain providing thoracic analgesia [1]. Currently it is known that ESPB can produce profound analgesia for a variety of pain syndromes and surgical procedures not only at thoracic level; it can be performed both by superficial or deep needle approach, but according to the literature, the technique that allows the best spread of Local Anesthetic (LA) consists in the injection of LA in the deep interfascial plane between the spinae erector muscle and the transverse process. In this way drug is deposited closer to costotransverse foramina and origin of dorsal and ventral rami [2-6]. Cadaveric studies have showed that block at T5 level is sufficient to have unilateral multi dermatomal sensory block ranging from T1 to L3 [7,8].

ESPB is relatively easy to perform with minimal complications, unlike paravertebral block, ESPB gains indirect access to the paravertebral space and provides analgesia without the potential risk of pneumothorax [9,10]. Furthermore ESPB provides an optimal analgesia for abdominal and thoracic surgery while avoiding both opioids and neuroaxial techniques with minimal or no sedation especially in the obese and frail patient. As the population ages, the rate of surgical procedures in older people is rapidly increasing and anesthetists encounter the frail older patient frequently. Frailty has been defined as a state of decreased physiologic reserve and resistance to stressors that make patients increasingly vulnerable to minor stressors [11,12]. This case report shows that ESPB can be used as an effective

and safe anaesthesiological alternative in fragile patients with multiple comorbidities.

Case Report

A 68-year-old male patient BMI 27,5 kg/m² affected by high blood pressure (hypertension), type 2 diabetes mellitus, COPD and ischemic heart disease on Dual Anti Platelet Therapy (DAPT) was posted for evacuation of a post-traumatic hematoma of about 15 cm of diameter localized in the left hemithorax, under the fascial plane. The dermatomal extension of the hematoma was identified with CT and US scan of the chest wall between T7 and T10. We decided to manage this case with ESPB, performed with minimal sedation avoiding general anesthesia, opioids and neuroaxial techniques.

In operating room, the block was administered under ultrasound guidance at the level of T7 transverse process by in-plane technique. The patient was placed in sitting position, a high-frequency linear probe 12 MHz (Sonosite HLF38 x 13-6 MHz; Fujifilm Sonosite Europe), and a 22 Gauge 85-mm (Vygon Locoplex) block needle was used. The needle was inserted approximately 3 cm away from midline in left hemithorax in cranial-caudal

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direction and it was advanced through the trapezius, rhomboid major, and erector spinae to contact transverse process (**Figure 1**). Needle placement was confirmed by hydro dissection on injecting 2–3 ml of normal saline. After confirming the correct localization of the needle tip, 20 mL of 0.75% ropivacaine and dexamethasone 8 mg was injected. Then the patient stayed in lateral position, in spontaneous breathing, sedated with 0.7 mcg/kg/h of dexmedetomidine 10 minutes before the surgery. The patient was contactable and cooperative for the entire surgical procedure. We tested the block 20 minutes after the local anesthetic injection with Pin Prick and Ice tests. The patient referred Hollmen 4 analgesia with an extension from T5 to L1 for the entire duration of the surgery (45'). The vital parameters were stable throughout the duration of the intervention without requiring neither opioids nor more sedation. After surgery we administered acetaminophen 1g then 1g each 8 hours. At 24 hour post-surgery, the patient reported a Numeric Rating Scale (NRS)<4, with no recourse to analgesic rescue dose. ESPB did not determine any limitation of movement both intra and post-surgery. There were neither PONV (Post-Operative Nausea and Vomiting) nor shivers in the postoperative time (**Figure 2**).

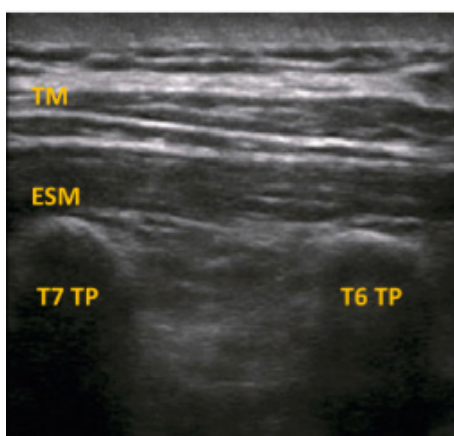


Figure 1: Ultrasonographic transverse section of T6 and T7 transverse process.

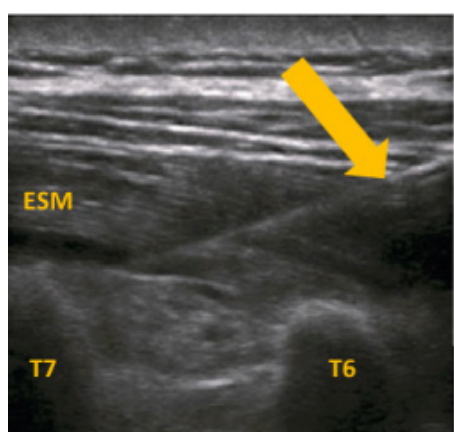


Figure 2: Needle in contact with T7 transverse process before injecting anaesthetic.

Discussion

ESPB could guarantee extensive intra and post-operative analgesia with less opioid requirements with the use of LA at anesthetic concentrations [13]. The multi-dermatomal sensory block is due to the cranial and caudal spread of the injected local anesthetic aided by the thoracolumbar fascia, and to the diffusion of the anesthetic solution both in the paravertebral space and in the peridural space [1,2]. Moreover, as suggested by cadaveric investigation and magnetic resonance imaging study ESP block provide a long-lasting analgesia [6-8]. Those effects lead us to select the level of execution of the procedure at T7. Our metameric extension, tested with Pin Prick and Ice test before surgery, is comparable to that one shown by Chin et al [4]. ESP could be a safer option in patients affected by coagulopathies or on anticoagulant/antiplatelet therapies. In contrast to others techniques ESP block is easy to perform and safe, having the transverse process as main target avoiding risk of hematomas and pneumothorax [9].

In our experience this technique is associated with optimal comfort to the patient and surgeon. Therefore, the proposed anesthesiological approach opioids free may be particularly suitable for fragile patients with neurological and respiratory diseases. ESPB is described in literature especially as an analgesic technique and not as main anesthetic choice; our experience suggests that this block should be taken into consideration as main anesthetic technique with minimal sedation particularly in patients with respiratory and hemodynamic problems [14-16]. This is only a case report and we further suggest controlled studies to compare ESP block with conventional anesthetic and analgesic techniques in terms of technical difficulty, efficacy and patient comfort.

Conclusion

ESP block with a minimal sedation may be used as the main anesthetic technique representing a valuable option in the management of fragile patients who undergo surgery. It's safe and easy to perform without determining any respiratory or hemodynamic impact. ESP block can also be a valid alternative if there are contraindications to practice neuroaxial or paravertebral block, such as coagulopathy or anticoagulant/antiplatelet therapy; it also provides extensive analgesia with a single puncture.

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Conflicts of Interests

The authors declare no conflicts of interests.

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