



Multiple Erector Spinae Plane Injections as a Component of Multimodal Perioperative Analgesia in Polytrauma Patient Undergoing Spine Surgery

Anju Gupta¹ , Dimple Pangtey² , Nishkarsh Gupta³ 

¹Department of Anaesthesiology, Pain and Critical Care, All India Institute of Medical Sciences (AIIMS), New Delhi, India

²Department of Anaesthesiology, Pain and Intensive Care, VMMC and Safdarjung Hospital, New Delhi, India

³Department of Onco-Anaesthesiology, and Palliative Medicine, All India Institute of Medical Sciences, New Delhi, India

Cite this article as: Gupta A, Pangtey D, Gupta N. Multiple Erector Spinae Plane Injections as a Component of Multimodal Perioperative Analgesia in Polytrauma Patient Undergoing Spine Surgery. Turk J Anaesthesiol Reanim 2021; 49(1): 88-9.

Dear Editor,

Poly-trauma patients with rib and spine fractures present unique set of challenges in the perioperative period. Anaesthesiologists need to formulate an effective opioid sparing pain management strategy that will allow better pulmonary mechanics and facilitate an early weaning from ventilator. Erector Spinae Plane block (ESPB) is performed by depositing the local anaesthetic (LA) deeper to the erector spinae muscle at the tip of the transverse process of the vertebra. ESPB has been utilised for perioperative analgesia as well as acute pain relief in patients with rib fractures (1-3). However, its use at different spinal levels in poly-trauma patients has not been described. Herein, we describe the use of bilevel ESPB for postoperative analgesia in a poly-trauma patient for spine.

A 26-year-old female poly-trauma patient, with a weight of 66 kgs was presented with fracture of 3rd to 7th ribs on the right side, fracture of right scapula, and burst fracture of L1 vertebra. She was to undergo posterior decompression by laminectomy at L1-2 and L1 transpedicular decompression with pedicle screw fixation at D11-12 and L2-3. She had bladder bowel involvement, hypothyroidism, and anaemia (Hb 7.8 gm%). In addition, she was hemodynamically unstable, had severe pain (numerical rating score 10/10), and was unable to cough or breathe deeply despite round the clock systemic analgesics including opioids. She had tachypnoea, basal bilateral rhonchi, hypoxia, and acidosis on arterial blood gas. In chest X-ray, bilateral pleural effusion was evident. She received fluid resuscitation, blood transfusion, and vasopressor support. With ongoing resuscitation, vasopressor support was weaned off before shifting the patient for the surgery.

After induction of anaesthesia, she was given ultrasound- (USG) guided right-sided ESPB at T4 with 20 ml of 0.25% bupivacaine and 8 mg of dexamethasone. The duration of the surgery was 6 hours with 1200 ml of blood loss. At the end of surgery, USG-guided bilateral ESPB was given at the T8 level using linear probe (8-13MHz) with 30 ml of 0.25% bupivacaine (15 ml each side). She was mechanically ventilated postoperatively and extubated after 6-8 hours of stabilisation in intensive care unit. Post-extubation, she received inj. paracetamol 1 gm 6 hourly and was pain free, able to cough, and breathe deeply. In the postoperative period, she required the first dose of tramadol 50 mg after 12 hours, and additional dose was needed in 48 hours. She was successfully shifted to oral analgesics later and rest of her course was uneventful.

The effectiveness of ESPB has been described in relation to rib fractures, perioperative analgesia for thoracoabdominal surgeries, and rib fracture pain (1-4). Ueshima et al. (4) found bilateral ESPB to be effective for lumbar spine

surgeries. Chin et al. (5) have described the use of bilateral bi-level erector spinae plane block for postoperative analgesia in scoliosis surgery involving large incision (total 80 mL LA in one patient and 60 mL in other).

Our case demanded extensive multimodal perioperative pain management for surgical pain as well as pain of rib and scapular fractures. We avoided the central neuraxial block in view of preoperative hemodynamic instability and spine fracture. The use of multiple level ESPB can be limited by the volume of local anaesthetics. We circumvented this issue by using spaced blocks (at the beginning and end of procedures). The pain management in our case provided better pulmonary mechanics and early weaning from ventilator with minimum opioid consumption.

We recommend the wider use of multilevel ESB block as part of multimodal analgesia in trauma patients for widely separated dermatomes.

Informed Consent: Written informed consent was obtained from the patient who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – A.G.; Design – A.G.; Supervision – A.G.; Resources – A.G.; Materials – A.G.; Data Collection

and/or Processing – A.G., D.P.; Analysis and/or Interpretation – A.G., N.G.; Literature Search – A.G., N.G.; Writing Manuscript – A.G., N.G.; Critical Review – A.G., N.G. D.P.; Other – A.G.

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Jain K, Jaiswal V, Puri A. erector spinae plane block: Relatively new block on horizon with a wide spectrum of application-A case series. *Indian J Anaesth* 2018; 62: 809-13. [\[Crossref\]](#)
2. Kot P, Rodriguez P, Granell M, Cano B, Rovira L, Morales J, et al. The erector spinae plane block: a narrative review. *Korean J Anesthesiol* 2019; 72: 209-20. [\[Crossref\]](#)
3. Hamilton DL, Manickam B. Erector spinae plane block for pain relief in rib fractures. *Br J Anaesth* 2017; 118: 474-5. [\[Crossref\]](#)
4. Ueshima H, Inagaki M, Toyone T, Otake H. Efficacy of the Erector Spinae Plane Block for Lumbar Spinal Surgery: A Retrospective Study. *Asian Spine J* 2019; 13: 254-7. [\[Crossref\]](#)
5. Chin KJ, Dinsmore MJ, Lewis S, Chan V. Opioid-sparing multimodal analgesia with bilateral bi-level erector spinae plane blocks in scoliosis surgery: a case report of two patients. *Eur Spine J* 2020; 29(Suppl 2): 138-44. [\[Crossref\]](#)