



## Case Report

# Unilateral erector spinae plane block for procedural sedation- A case report

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### ABSTRACT

MRI of the spine requires the patient to stay still in lying down position. With patient on severe excruciating pain, lying down supine is not always feasible during MRI and any intervention with least possible adverse effect on the patient is preferred. Sedation in MRI suite requires MRI compatible monitors which is not readily available in all centers. The erector spinae plane block provides analgesia via its action on the ventral rami of spinal nerves. ESP block is a safe and easy procedure and it aids to overcome the side effects of administering intravenous agents for procedural sedation.

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## 1. Introduction

According to American Society of Anaesthesiologists Task Force, procedural sedation involves either administering sedative/analgesic medications not intended for general anaesthesia (like midazolam, lorazepam or dexmedetomidine) or sedative/analgesic medications intended for general anaesthesia (like propofol, etomidate) or both along with opioids under close monitoring of oxygenation, end tidal carbon dioxide levels, blood pressure, heart rate and EKG.<sup>1</sup>

Conventionally, MRI of the spine requires the patient to stay still in lying down position. With patient on severe excruciating pain, lying down supine is not always feasible during MRI and any intervention with least possible adverse effect on the patient is preferred. Moreover, sedation in MRI suite requires MRI compatible monitors which is not readily available in all centres.

Erector spinae plane block is a novel modality of providing analgesia to lumbosacral region. The erector spinae plane (ESP) block technique was first described

for thoracic and abdominal analgesia via its action on the ventral rami of spinal nerves. The block was first described in 2016 in patients with severe thoracic neuropathic pain where the block adequately provided pain relief. Also it was demonstrated in a cadaveric study that the most likely site of action is the dorsal and ventral rami of spinal nerves.<sup>2</sup>

Yet, to the best of our knowledge this is the first report upon the use of ESP block so as to ease the patient to undergo imaging.

## 2. Case Report

A 19-year female presented to the orthopaedic outpatient clinic with complaints of acute low back pain for two days. The pain was dull aching, continuous, localised to her left lower back and not radiating. The pain was not relieved despite oral and intravenous shots of over-the-counter analgesics. Patient denied any history of trauma. She was otherwise healthy with no co-morbidities or any previous surgeries. Upon local examination, no motor or sensory deficit was elicited. The patient could not lie supine attributed to her pain and the patient prefers lying down left lateral. Patient was planned for MRI to evaluate her low back pain. MRI to be undertaken in supine position.

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Since the patient could not be positioned adequately for the procedure, MRI was planned under intravenous sedation. Incremental doses of Inj. Fentanyl upto 100 µg was given to see the response to pain. No symptomatic pain relief noted. Plan was then to proceed with intravenous sedation. We did not proceed further with intravenous sedatives as we did not have MRI compatible monitors at the time of scanning. We then thought of using long lines attached to the patient and to proceed with the procedure using intravenous agents but we thought that would turn out to be cumbersome. But then ESP block was thought as better alternative as it has a better safety and hemodynamic profile compared to intravenous sedation.

Upon informed and written consent, patient was shifted to procedure room. Patient was allowed to lie in left lateral position. Skin was disinfected with betadine solution. High frequency linear-array ultrasound transducer was covered in a sterile cling cover and was placed in a longitudinal parasagittal orientation 3 cm lateral to the midline over the left side to identify the tip of the transverse process at the level of T8. A 25G Quincke needle was employed for the block performed. The needle was inserted in plane with the ultrasound beam. Correct needle tip position was confirmed by hydro dissection following which 8 ml of lignocaine 0.2% and 7 ml Bupivacaine 0.5% was injected separating the erector spinae muscle from the transverse process. The patient immediately could lie down supine after one minute of administering the drug and she was shifted to MRI suite for imaging. MRI was performed for lumbar spine T1 and T2 TSE sagittal, T1 and T2 TSE transverse, T2 sag of whole spine. The procedure lasted for 40 minutes.

### 3. Discussion

In select patient category like paediatric population, those patients with claustrophobia, those who cannot maintain posture due to pain (as in our case), movement disorders, general anaesthesia is required.<sup>3</sup> This is accomplished via spontaneous ventilation via a laryngeal mask airway or tracheal intubation. However, we aimed at relieving the pain with least possible intervention and moreover application of intravenous sedation or general anaesthesia would be risky in our case as we did not have MRI compatible monitors at the time of scan. Though we know the role of ESP block for post operative analgesia for thoracic and abdominal surgeries, literature search did not give us promising results upon the use of ESP block for procedural sedation.

The mechanism of ESP block is proposed that, each upper thoracic spinal nerve splits into a dorsal and ventral ramus at its exit from the intervertebral foramen. The dorsal ramus travels posteriorly through the costotransverse foramen and ascends into the erector spinae muscle where it divides into lateral and medial branches. The ventral ramus travels laterally as the intercostal nerve, running first deep to the internal intercostal membrane and then in the plane between internal and innermost intercostal

muscle on the inner aspect of the rib.<sup>4</sup> ESP block is considered an extensive cutaneous sensory block because it affects either the dorsal rami or both the dorsal and ventral rami of the spinal nerves.<sup>2</sup> Having said blocking the nerve could relieve the pain, the likely cause of her low back pain could be paraspinal spasm as the drug upon entering paravertebral space could have relieved the pain. Research supports the possibility that low back pain can trigger spasms of the paraspinal muscles associated with intervertebral dysfunction. Such spasms are thought to act as a protective mechanism, splinting injured areas of the spine. Injuries may be superficial such as strain/sprain or more serious such as disk protrusion, spondylosis, or fracture.<sup>5</sup> This goes in line with the MRI finding that at L4-5 level there is symmetric disc bulge with no thecal indentation.

To the best of our knowledge this is the first report on the use of ESP block so as to ease the patient to undergo imaging thereby adding insight of novel nerve block techniques into our clinical practice.

ESP block is a safe and easy procedure and it aids to overcome the side effects of administering intravenous agents for procedural sedation. This is more cost effective, increased comfort level for the patient and most importantly decreases poly pharmacy.

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