Erector spinae plane block for bilateral lumbar transverse process fracture in emergency department: A new indication

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1. Introduction

Erector spinae plane (ESP) block is a novel and effective interfascial plane block for thoracic and abdominal surgery. It was first described by Forero et al. in 2016, effectiveness being reported in four cases [1]. Although it was first used for thoracic analgesia, recent studies have reported its use in abdominal or lumbar surgery with application at the lower levels [2-5]. ESP block was first described in emergency department (ED) to relieve multiple rib fractures pain [6]. Moderate or severe pain following transverse process fracture is a challenge for ED physician and significant opioid consumption may be required to relieve this pain.

Here we first report a novel indication for ESP block in ED; transverse process fracture of lumbar vertebra.

2. Case report

Case was a 60-year-old woman, who presented with bilateral isolated L2 transverse process fracture with severe painful condition (9/10 VAS intensity) (Fig. 1A). We decided to perform ESP block for pain relief in ED. The procedure was performed in the sitting position by using high frequency linear ultrasound probe. First, the transverse process was visualized 3 cm lateral to the midline at the level of T10 process with longitudinal parasagittal orientation. The latissimus dorsi muscle, erector spinae muscle and transverse process were visualized respectively. After touching the transverse process of T10 by needle using the in-plane technique on the cranial-caudal route, the needle was directed under the erector spinae muscle. 2 ml of saline solution was injected to confirm the erector spinae muscle plane, and 10 ml 0.5% bupivacaine, 10 ml 2% lidocaine and 10 ml saline mixture was injected (Fig. 1B). The procedure was repeated for the other side with same medication. The VAS score of the patient was reduced to 0 in seconds following the block procedure. Twenty minutes after the procedure, the VAS score of the patient was 2 with movement and 0 in passive condition. Block procedure was uneventful and no additional analgesic was needed for 24 h. Patient was treated conservatively with rest and oral analgesia and discharged without any problem on the other day.

3. Discussion

Since initial description by Forero [1] for thoracic region, the erector spinae plane block (ESP) has experienced several surgeries for postoperative pain management or chronic pain [7, 8]. Our review of the literature revealed that ESP block has been applied in video-assisted thoracoscopic surgery (VATS), pulmonary lobectomy, thoracic rib fractures, mastectomy, axillary sentinel lymph node biopsy, abdominal surgery [2, 4] and in cases of neuropathic pain in the thoracic region [3].

ESP block have also used for minor surgical procedures of thoracic region as an effective anesthesia method without general anesthesia [9, 10]. In a study, preoperative bilateral ESP blocks provided effective postoperative analgesia undergoing lumbosacral spine surgery at the T10-T12 level with a volume between 20 and 30 ml [5]. Moreover, in
emergency department ESP block was demonstrated safely for posterior traumatic rib fractures with its rapid and excellent analgesia profile [6].

Fracture of lumbar transverse process causes moderate to severe back pain that is aggravated with movement [11]. The goal of emergency department (ED) physician is controlling the pain without large doses of opioids until transfer to the ward. Based on the location of the lesion, we decided which level should be preferred. For this reason, we have been away from the lumbar region due to the patient’s pain at this levels, the ultrasound probe pressure can worsen the pain intensity. The optimal concentration and amount of local anesthetics needed to provide sufficient analgesia with ESPB is yet unknown. We observed a sufficient spreading with a volume of 30 ml at the level of T10 vertebra according to existing literature. ESP block provides effective analgesia starting within minutes.

In conclusion, our case demonstrates that ESP block provides sufficient analgesia in patients with transverse process fracture. ESP block is simple to perform, and it may be a suitable alternative as a part of multimodal approach for acute pain management in ED. However, randomized clinical studies are needed to assess the effectiveness of ESP block for this new indication.

References


