



Erector Spinae Plane Block for Computed Tomographic Scan Guidance Percutaneous Radiofrequency Ablation of Pulmonary Metastasis: Three Cases

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Dear Editor,

Radiofrequency ablation (RFA) is a minimal invasive approach for treating solid tumors. A computed tomography (CT)-guided needle electrode is inserted percutaneously into the tumor. The electromagnetic current generated by the radiofrequency generator causes coagulation and necrosis in the tumor. In this procedure, the local temperature rises above 90°C, especially in large and close to the chest wall, serious pain occurs during and after the intervention (1). Although RFA procedures can be performed with local anaesthesia-sedation or general anaesthesia, local anaesthesia can lead to simple and fewer postoperative complications and has the advantage of short hospital stay (2).

Erector spinae plane (ESP) is a recently described technique that provides analgesia in abdominal, breast, and thoracic surgeries (3). The local anaesthetic administered during the ESP block spreads in the paravertebral space, leading to effective analgesia for somatic and visceral pain (4).

In this report, we presented the ESP block in three cases for periprocedural analgesia in CT-guided RFA owing to lung metastasis. Written informed consent was obtained from patients for this report. The first patient was a 51-year-old, 80-kg male with colorectal cancer. He had a 17'15 mm metastasis in the left middle lobe of the lung. The second patient was a 45-year-old, 90-kg female with breast cancer. She had a 4'4 mm metastasis in the right middle lobe of the lung. The third patient was a 60-year-old, 70-kg female with endometrium cancer. She had a 7'7 mm metastasis in the right superior-posterior lobe of lung. Ablation was performed at 90°C for 12, 15, and 10 min, respectively.

Patients were monitored by electrocardiography, pulse oximeter (SpO₂), mean arterial pressure (MAP) and noninvasive end-tidal carbon dioxide (ETCO₂). Nasal cannula of the ETCO₂ monitor was placed to the patients in prone position and oxygen was delivered at flow rates of 2 L min⁻¹. Patients were sedated with dexmedetomidine 1 mcg kg⁻¹ intravenously over 10 min. An ultrasound-guided ESP block was performed unilaterally (related area) in the sitting position on the three patients before the procedure. The high-frequency linear ultrasound transducer was placed in a sagittal plane 2-3 cm lateral to the T5 spinous process. A hyperechoic shadow of the transverse process and the erector spinae was defined. An in-plane approach was used with a 21-gauge 80-mm atraumatic needle for peripheral nerve blocks. The needle was inserted in the caudal-to-cephalic direction through the erector spinae muscle to contact the T5 transverse process. When the appropriate needle tip location was confirmed, 17 mL of 0.5% bupivacaine and 3 mL of saline were injected. Sonographic confirmation of the LA spread was observed as

an anechoic shadow in the ESP from T5 to T9. After confirming that successful blockade from T3 to T9 was achieved in 30 min, propofol ($0.5-1 \text{ mg kg}^{-1} \text{ h}^{-2}$) was infused to achieve a Ramsay sedation score of 2-3. Ramsay sedation scores (2), hemodynamic values (MAP 65-70 mmHg; HR 70-75 beats min^{-1}), SpO_2 (100), ETCO_2 (32-35 mmHg), and the integrated pulmonary index (9-10) of the patients were in normal range during the procedure. No additional local anaesthetic infiltration or opioids were required. The total procedure time was 50 min approximately. The total propofol consumption of the patients was 50-80 mg. Their pain score was maintained at 0-1 points during the postprocedural 24 h, and no additional rescue analgesics were administered.

We consider that the ESP block with sedation is a suitable option for anaesthesia and analgesia in percutaneous RFA of pulmonary metastasis.

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References

1. Okuma T, Matsuoka T, Yamamoto A, Oyama Y, Toyoshima M, Nakamura K, et al. Frequency and risk factors of various complications after computed tomographyguided radiofrequency ablation of lung tumors. *Cardiovasc Intervent Radiol* 2008; 31: 122-30. [\[Crossref\]](#)
2. Forero M, Adhikary SD, Lopez H, Tsui C, Chin KJ. The Erector Spinae Plane Block: A Novel Analgesic Technique in Thoracic Neuropathic Pain. *Reg Anaesth Pain Med* 2016; 41: 621-7. [\[Crossref\]](#)
3. Jin Q, Chen X, Zheng S. The Security Rating on Local Ablation and Interventional Therapy for Hepatocellular Carcinoma (HCC) and the Comparison among Multiple Anaesthesia Methods. *Anal Cell Pathol (Amst)* 2019; 2019: 2965173. [\[Crossref\]](#)
4. Chin KJ, Malhas L, Perlas A. The Erector Spinae Plane Block Provides Visceral Abdominal Analgesia in Bariatric Surgery: A Report of 3 Cases. *Reg Anaesth Pain Med* 2017; 42: 372-6. [\[Crossref\]](#)