



## LETTER TO THE EDITOR

## Erector spinae plane block for post thoracotomy pain in a patient with myasthenia gravis

*Myasthenia gravis hastasında torakotomi sonrası ağrı için ESP blok*

**Munise YILDIZ**

To the Editor,

Myasthenia gravis (MG), an autoimmune neuromuscular disease, characterized by autoantibodies to the acetylcholine receptor or other proteins of the neuromuscular compound, causing weakness and fatigue in the ocular, bulbar, limb, and respiratory muscles.<sup>[1]</sup> Approximately 80% of patients with MG show thymic abnormalities such as hyperplasia and thymoma.<sup>[2]</sup> Although medical treatments (anticholinesterases and/or immunomodulatory therapy) are used; thymectomy is still the best option in treatment. Although thoracoscopic thymectomy is a minimally invasive procedure, thymectomy via a median sternotomy is still a popular form of conventional surgery that is used depending on the location and size of the thymoma. Severe postoperative pain, which can cause impaired pulmonary function leading to pulmonary infection and atelectasis, is often present the following thymectomy via mediansternotomy.<sup>[3]</sup> In addition, stress caused by pain may cause a myasthenic crisis and prolonged intensive care unit (ICU) stay. Therefore, appropriate pain management after thymectomy is important in myasthenic patients. Acetaminophen, opioids, and local anesthetic infiltration can relieve pain but patients often still feel moderate to severe pain. Opioids for analgesic use carry the risk of respiratory depression.<sup>[4]</sup>

The erector spinae plane (ESP) block is a novel fascial plane block in which local anesthetic is deposited in the musculofascial plane between erector spinae

muscle and thoracic transverse processes.<sup>[5]</sup> Coverage of midline incisions can be achieved with bilateral ESP blocks, and thus would be a feasible analgesic strategy in median sternotomy. Here we describe the successful application of bilateral ESP block at the Th5 level for acute post-surgical pain relief after a median sternotomy for excision of thymus tissue in a patient with MG.<sup>[3]</sup>

Written, informed consent was obtained for this case report. A 50-year-old female (80 kg; 163 cm; ASA II) patient with chest pain was scheduled for thymectomy. The patient was diagnosed as MG 4 years ago and classified as Osserman stage IIA. The only comorbid condition was hypertension, which was well controlled by metoprolol (peros). Her neurological examination was normal during the preoperative evaluation. She was receiving 60 mg every 6 h of pyridostigmine bromide (peros) for MG treatment. Metoprolol and pyridostigmine bromide premedication continued on the day of operation. Full blood count, biochemistry, and coagulation were all within normal limits. She had a good exercise tolerance (>4 METs). The patient's baseline vital signs were a heart rate of 61 bpm and blood pressure of 135/75 mmHg.

After a detailed discussion with the patient, we decided to perform bilateral ESP blockade for adequate postoperative pain control. On the day of the operation, the patient was given a mild premedication for anxiolysis. When the patient arrived in the operating room an 20 G cannula was inserted, and crystalloid

Department of Anesthesiology and Reanimation, University of Health Sciences, Konya Training and Research Hospital, Konya Turkey

Submitted: 13.02.2020 Accepted after revision: 02.09.2020 Available online date: 17.11.2020

**Correspondence:** Dr. Munise Yıldız. Sağlık Bilimleri Üniversitesi, Konya Eğitim ve Araştırma Hastanesi, Anestezioloji ve Reanimasyon Anabilim Dalı, Konya, Turkey.

**Phone:** +90 - 332 - 323 67 09 **e-mail:** drmunise@hotmail.com

© 2022 Turkish Society of Algology

infusion was started. After the standard monitoring general anaesthesia was induced with midazolam 2 mg intravenously (iv), propofol 2 mg/kg (iv), rocuronium 0.4 mg/kg (iv) and fentanyl 100 µg (iv). Anaesthesia was maintained with 2% sevoflurane and remifentanyl infusion at 0.1 mg/kg/min (iv).

Due to the bradycardia, at 110 minutes of surgery, 0.5 mg of atropine iv was administered. The patient was hemodynamically stable throughout the operation. The operation lasted 210 min. At the end of the procedure, 1 g of paracetamol and 20 mg of tenoxicam iv were administered.

ESP block was performed under general anaesthesia on left lateral decubitus position using an aseptic technique and a high frequency (12–15 MHz) linear-array transducer (Esaote MyLab 5, Genova, Italy). Ultrasonography probe was placed in a longitudinal parasagittal orientation approximately 3 cm from the midline and the plane between the tip of the T5 transverse process and the overlying erector spinae muscle was identified. 22-gauge, echogenic peripheral block needle (Pajunk, Germany) inserted in-plane to the ultrasound beam and in a cranial-to-caudal direction to contact the tip of the T5 transverse process. Correct needle tip position was confirmed with hydrolocation after negative aspiration of blood or air and then local anesthetic was slowly injected that lifted the erector spinae muscle off the transverse process. The same procedure was repeated at both bilateral Th5 levels and a total 40 mL of 0.25% bupivacaine was divided equally.

She was transferred to the post anaesthesia care unit (PACU) after extubation. Her pain was recorded as 2/10 on a Numeric Rating Scale (NRS), no further analgesia was required in PACU. The patient was

transferred to the Thoracic Surgery ICU. Eight hours after ESP block, the patient's pain was 4/10 (NRS) according to the Numeric Pain Rating Scale and 50 mg of meperidine hydrochloride iv was administered. Maintenance analgesic therapy was administered intravenously to 1 g of acetaminophen every 8 h as the postoperative without any additional opioids requiring.

ESP block; It is a new technique that provides postoperative analgesia after thoracotomy, reduces opioid requirements, is easy and safe to apply. It can be considered as part of good pain management, contributing to rapid recovery for MG patients. In this patient, using erector spinae block provided good analgesia, which required only 50 mg meperidine hydrochloride iv for 8 h without any side effects or complications. These data suggest that ESP is a useful, simple and rapid strategy for postoperative pain management in thymectomy cases, but further randomized controlled trials are needed.

## References

1. Moser B, Bekos C, Zimprich F, Nickl S, Klepetko W, Ankersmit J. The receptor for advanced glycation end products and its ligands in patients with myasthenia gravis. *Biochem Biophys Res Commun* 2012;420(1):96–101. [\[CrossRef\]](#)
2. Berrih-Aknin S, Le Panse R. Myasthenia gravis: A comprehensive review of immune dysregulation and etiological mechanisms. *J Autoimmun* 2014;52:90–100. [\[CrossRef\]](#)
3. Restrepo-Garces CE, Chin KJ, Suarez P, Diaz A. Bilateral continuous erector spinae plane block contributes to effective postoperative analgesia after major open abdominal surgery: A case report. *A A Case Rep* 2017;9(11):319–21. [\[CrossRef\]](#)
4. Blichfeldt-Lauridsen L, Hansen BD. Anaesthesia and myasthenia gravis. *Acta Anaesthesiol Scand* 2012;56:17–22. [\[CrossRef\]](#)
5. Forero M, Adhikary SD, Lopez H, Tsui, C, Chin KJ. The erector spinae plane block: A novel analgesic technique in thoracic neuropathic pain. *Reg Anesth Pain Med* 2016;41(5):621–7.