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## Correspondence

## An Erector Spinae Plane block as the sole anesthetic for an anterior mini-thoracotomy in a patient with a cardiac tamponade

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### To the Editor

With the global spread of the coronavirus disease 2019 (COVID-19), viral pericarditis with concomitant cardiac tamponade has been occasionally reported. Pericardial effusions showing signs of tamponade require immediate drainage via pericardial window, regardless of the cause. The intervention is usually performed under general anesthesia, which can cause further hemodynamic deterioration. General anesthesia and mechanical ventilation with positive end-expiratory pressure (PEEP) can cause myocardial depression in susceptible patients with comorbid disease, including cardiac tamponade [1]. However, management of cardiac tamponade can be performed under local anesthesia with sedation. The Erector Spinae Plane (ESP) block is increasingly being used for thoracic and lumbar analgesia in the setting of acute or chronic pain treatment. The ESP block performed under ultrasound guidance is an easy, effective and safe technique that provides effective postoperative analgesia. We report the successful use of the Erector Spinae Plane (ESP) block as the sole anesthetic technique in an American Society of Anesthesiologists (ASA) physical status 5E patient diagnosed with the COVID-19 infection who underwent an anterior mini-thoracotomy for cardiac tamponade.

This communication complied with the EQUATOR publishing guidelines for case reports. Written approval of the patient was obtained for the use of relevant data and images. A 65-year-old female patient was admitted to the hospital with fever, dyspnea, chest pain and a diagnosis of COVID-19. Medical therapy for COVID-19 was initiated, including; two doses of methylprednisolone 40 mg intravenous, two doses of enoxaparin 60 mg/0.6mL subcutaneous and two doses of favipiravir peroral 1600 mg according to the available protocols. The patient had a medical history of diabetes mellitus, hypertension, surgery for endometrial carcinoma and chemotherapy. Besides COVID-19 related findings, metastatic lung lesions were also detected in the thoracic computed-tomography (CT) scan. A massive pericardial effusion with lung infiltrations was detected on CT, and the patient was referred to the intensive care unit (ICU). On the 4th day of the ICU stay she became

dyspneic and hypotensive (90/60mmHg) with pronounced tachycardia (135/min). The mean oxygen saturation was 97% on room air. Two transthoracic echocardiography examinations revealed progressive pericardial effusion. The ejection fraction was 60%. Steradine (norepinephrine bitartrate) infusion was started because her symptoms were suggestive of a cardiac tamponade and an urgent pericardial window drainage was planned.

After applying standard ASA monitors, IV midazolam 0.05 mg/kg was administered for sedation. The procedure was performed by the same experienced anesthesiologist using a high-frequency linear ultrasound probe in the lateral decubitus position under sterile conditions. Counting down from the first rib to T5, the transverse process, erector spinae, rhomboid major, and trapezius muscles were visualized. A 50 mm 22 G stimulating needle was inserted into the longitudinal parasagittal plane between the transverse process (TP) and the erector spinae muscles. After injecting 2 mL of saline solution to confirm the erector spinae muscle plane, 20 mL 0.5% bupivacaine and 10 mL 2% lidocaine mixture were injected.

The pericardial window was performed under regional anesthesia using the ESP block as the sole anesthetic. The operation lasted approximately 30 min (Fig. 1). The hemodynamic status of the patient did not change during pericardial drainage. The patient was transferred to the COVID-19 ICU following the operation.

The ESP block was recently introduced by Forero in 2016 for neuropathic chest pain and was subsequently used successfully for mastectomy and other surgeries [2,3]. It has been shown to provide effective analgesia in patients undergoing cardiothoracic surgery via mini-thoracotomy, which may cause severe postoperative pain [4]. Induction of anesthesia with IV anesthetics such as propofol can cause vasodilation and decreased venous return to the right heart. During maintenance of anesthesia, inhalation anesthetics such as sevoflurane can cause bradycardia and hypotension. These anesthetic effects can seriously disrupt cardiac function in patients with tamponade. The result is clinical deterioration as well as increased morbidity and even

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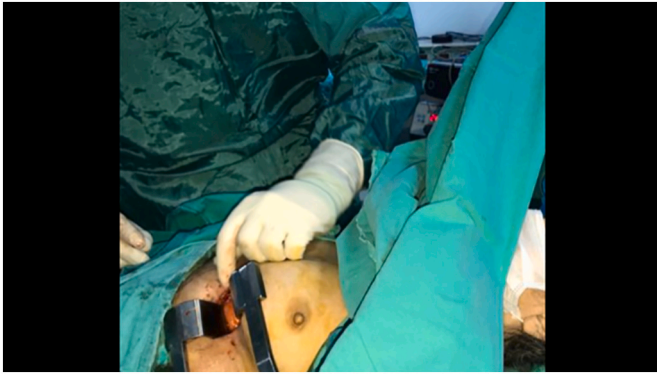


Fig. 1. Image of the patient undergoing surgery.

mortality.

Local or regional anesthesia techniques such as thoracic epidural, paravertebral block, or transversus thoracic muscle plane block could also be used, but they can cause serious complications such as epidural hematoma and hemothorax [5].

Our experience shows that ESP block with ultrasound is an easy, effective, and safe anesthetic technique for a mini-thoracotomy, especially in high-risk patients who develop a cardiac tamponade.

#### Disclosure

There is no funding, financial relationships to disclose.

#### Financial disclosure

There are no financial disclosures

#### Declaration of Competing Interest

None.

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