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The erector spinae plane block for radicular pain during pregnancy

Radicular pain arising from the lumbar, and occasionally cervical, level is not unusual during pregnancy and may commonly be caused by the physiological stresses of pregnancy which worsen symptoms of radiculopathy. Diagnostic and therapeutic challenges occur in this population, notably relating to the choice of imaging and the dichotomy between medical and surgical management.[1] Magnetic resonance imaging (MRI) is the imaging method of choice to confirm radicular involvement, particularly in patients with ongoing neurologic deficit.[1]

Medical management of radicular pain is the cornerstone of treatment and includes physical therapy focusing on optimal posture and the application of heat locally.[2,3] Non-steroidal anti-inflammatory drugs and neuromodulators such as pregabalin are commonly prescribed for acute radicular pain crises but are troublesome in pregnancy.[1,4,5] Epidural steroid injection is part of the medical management for neck pain[1] and to minimize neurological risk the use of fluoroscopy is considered mandatory.[6] This is not possible, however, during pregnancy due to exposure to ionizing radiation.

If symptoms remain refractory to medical management, surgical intervention is an option. The timing of surgery is an issue and it is usually recommended that it be performed after the first trimester. In the third trimester maintenance of placental perfusion, avoidance of aortocaval compression and maternal hypotension are vital.[7] Pregnancy may limit the therapeutic options for treating radicular pain, leading to failure of treatment and exposing the patient to unnecessary surgical interventions.

The erector spinae plane (ESP) block has recently been described in the management of thoracic neuropathic pain[8] and acute pain after surgery.[9] Dermatomal spread of the block may extend beyond the application level. Its performance with ultrasound guidance makes it suitable for use in pregnant women. We report the use of an ESP block for cervical radicular pain during pregnancy. A 42-year-old woman at 13 weeks' gestation was referred to our pain clinic with pain in her neck and left arm, associated with episodes of stabbing pain with burning symptoms in the lateral aspect of her left shoulder and the interscapular area. She denied power loss and no "red flag" symptoms or signs were noted. The pain was always present. She received paracetamol and physical therapy but could not tolerate the latter and improvement was minimal. Electromyography and nerve conduction studies showed acute C7 nerve root involvement.

Physical examination revealed cervical muscle spasm with decreased movement and a positive Spurling's test. Tricipital reflex and power were normal but light brush allodynia and pinprick hyperalgesia were present in the described dermatome.

After failure of conservative therapy and extensive discussion with the woman, an ESP block was performed. The patient was placed in the left lateral decubitus position and after instituting standard monitoring

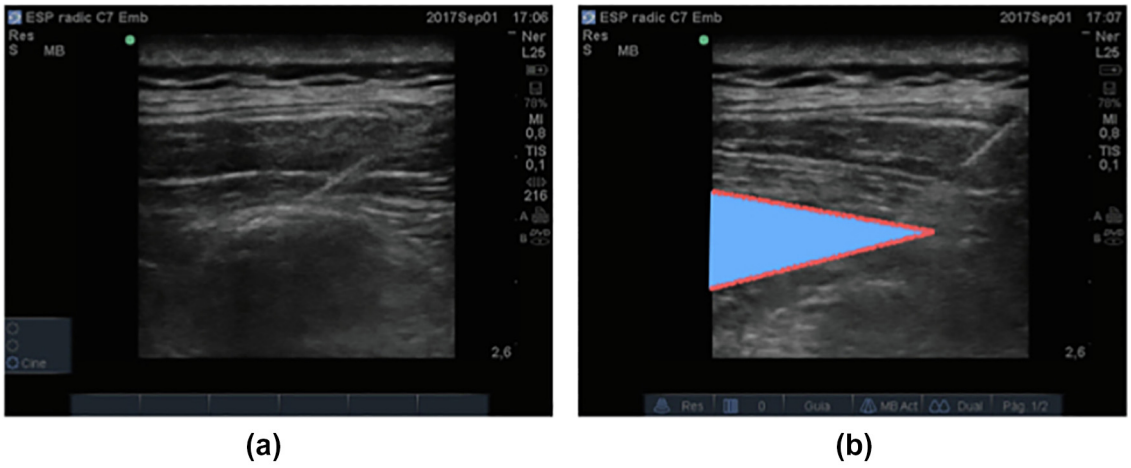

Fig. 1 (a) Needle on the top of transverse process. (b) Hydrodissection (blue triangle) under the erector spinae muscles (ESM). Notice the two other muscle layers above the ESM corresponding to the trapezius and the rhomboid muscle. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article)

ultrasound examination at the T3 level identified the area between the T3 transverse process (TP) and the erector spinae muscle (ESM). Using an aseptic technique after local anesthesia, an insulated needle (Pajunk, SonoPlex Cannula, Geisingin, Germany) was introduced using an in-plane approach with a high frequency transducer (Sonosite, M Turbo, Bothell, MA) until bone contact was made. Hydrodissection with saline (Fig. 1) revealed linear spread above the TP and below the fascia of the ESM. After a negative aspiration test, 20 mL of a mixture containing plain lidocaine 0.5% and bupivacaine 0.25% with 40 mg triamcinolone was injected. Assessing by means of response to cold, dermatomal spread from C5 to T3 was revealed.

The patient had a positive response to treatment at two and eight weeks after the procedure, describing a global reduction in pain of 85% proximally (cervical and scapular area) and 50% distally (forearm) at two weeks and 90% reduction of both symptoms at eight weeks. The patient tolerated the physical therapy program and no emergency room visits were recorded. She remained symptom- and recurrence-free 12 weeks after the ESP injection.

To our knowledge this is the first report of an ESP block used for spinal-related pain in the obstetric setting. This block may be a suitable alternative for the management of acute radicular symptoms in pregnant patients and avoid the potential risks of surgical intervention during pregnancy. Further prospective studies are necessary to define the role of ESP block for spinal-related pain in non-pregnant and pregnant patients.

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Acute hypoglycemia during cesarean delivery in a patient with type-1 diabetes mellitus

Insulin resistance increases during pregnancy due to high levels of cytokines produced by the placenta.[1] In patients with type-1 diabetes mellitus (DM) requiring administration of insulin, the amount of insulin increases as pregnancy progresses, while the risk of a hypoglycemic attack increases after placental delivery as a result of a rapid reduction in insulin resistance.[2] We managed a 39-year-old patient (gravida 9, para 6), at 37 weeks' gestation, who had type-1 DM (high hemoglobin$A1_C$ of 70.5 mmol/mol). The DM had been diagnosed during her sixth pregnancy, during which her blood glucose was controlled using 20 units of a rapid-acting insulin analogue before every meal and 48 units of a long-acting insulin analogue before sleep. She had an uneventful current pregnancy, free of hypoglycemia events, and her blood glucose levels ranged from 4.5 to 7.4 mmol/L after 32 weeks' gestation. Her blood glucose was managed using 24 units of rapid-acting insulin analogue before every meal and 55 units of long-acting insulin analogue administered before sleep. On the day of delivery, five days after hospitalization for oligohydramnios, her pre-prandial level was 5.6 mmol/L and 24 units of rapid-acting insulin analogue were administered. After 90 minutes without oral intake and no blood glucose measurement, she underwent an urgent cesarean delivery (followed by tubal ligation) for late deceleration of the fetal heart rate. Spinal anesthesia was performed using 11 mg 0.5% hyperbaric bupivacaine, 10 μg fentanyl and 0.1 mg morphine, achieving a T4 sensory level. Intra-operatively, a total of 1050 mL of intravenous Ringer solution (450 mL before delivery and 600 mL until the end of surgery) was administered. Systolic blood pressure was maintained at 110 mmHg or more with 50 μg boluses of phenylephrine. Intra-operatively, her arterial oxygen saturation was 98–99% on oxygen at 5 L/min administered via face mask. She delivered a healthy baby with a blood glucose level of 3.8 mmol/L. Seventy minutes