



Obstetrics and Gynaecology Cases - Reviews

CASE REPORT

Erector Spinae Plane Block for Peripartum Analgesia in a Patient with Tarlov Cysts

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Abstract

Objectives: Tarlov cysts are sacral perineural cysts which occur in up to 4.6% of the population. Neuraxial anesthesia is relatively contraindicated in these patients. Similarly, many of these patients have chronic pain from the cysts, often requiring chronic opioid use. Pain during labor may be difficult to control in these patients due to concerns regarding neuraxial analgesia and submaximal benefit from systemic remifentanyl infusions. The Erector Spinae Plane (ESP) Block has recently been described as a regional technique for thoracic and abdominal procedures which can decrease both somatic and visceral pain.

Case report: We report the use of an ESP block in the peripartum period in a patient with history of Tarlov cysts and who was chronically on the partial opioid agonist buprenorphine. The patient had inadequate pain control on a remifentanyl PCA and requested additional pain relief, though neuraxial anesthesia was relatively contraindicated in this patient due to a history of Tarlovcysts. She had significant postpartum pain following manual extraction of twin placentas as well as placement of an intrauterine balloon control of postpartum hemorrhage. Following placement of an ESP block at the T10 spinal level she experienced significant pain relief.

Conclusions: The use of an ESP in this population is promising due to its ability to cover the affected spinal levels and be given as a continuous infusion. Patients who cannot receive a neuraxial technique for anatomic reasons can reasonably be given an ESP block with comparable efficacy.

ported incidence of 4.6%, of which 22% of those patients were symptomatic from their cysts resulting in chronic pain [2]. Cysts, and other abnormalities in the anatomy of the spine is associated with difficult neuraxial anesthesia placement, as well as a high failure rate of neuraxial technique. Part of this difficulty is falsely obtaining Cerebrospinal Fluid (CSF) during spinal anesthesia placement, but only depositing anesthetic into the cyst itself [3,4]. Similarly, due to the large physical size of the cyst, there can be an inability of local anesthetic to flow throughout the epidural space when an epidural anesthetic is chosen. The presence of subarachnoid cystic structures in the spinal canal has been associated with complications resulting from neuraxial anesthesia, some of which cause permanent sequelae [5,6]. Thus, the presence of Tarlov cysts and other spinal anatomic variation is a relative contraindication for neuraxial anesthesia.

First reported in 2016, the Erector Spinae Plane (ESP) Block [7] is a plane block which utilizes the plane beneath the erector spinae muscle, adjacent to the dorsal and ventral rami of the spinal nerves. It was first described for use when providing analgesia for the thoracic spine and ribs [8], however recent case reports describe its use for abdominal surgery [9,10]. When used with laparoscopic abdominal surgery, there was significant visceral pain relief from the block. Additionally, due to concerns with hypotension and motor blockade associated with thoracic epidurals, continuous postoperative analgesia has been provided with bilateral erector spinae plane

Introduction

Tarlov cysts are a type of perineurium and neural tissue occurring in the sacral and coccygeal nerve roots, first described by Dr. Tarlov in 1938 [1]. There is a re-



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catheters [11]. Interestingly, single injection of local anesthetic appears to spread to many spinal levels, indicating fairly wide coverage for abdominal surgery. Labor pain is thought to arise from uterocervical afferents to T10-L1 and cervical afferents via the pudendal nerve to S2-S4 [12]. Assuming the ESP blockade can provide coverage from T10-S4, the ESP could be a reasonable alternative for patients who cannot have neuraxial anesthesia for anatomic concerns.

Regional techniques provide analgesia through different mechanisms than systemic medications due to their action on sodium channels. Chronic opioid users may have marginal benefit from alternative labor analgesic modalities such as remifentanyl PCA, particularly those who chronically use partial opioid agonists such as buprenorphine. Additionally, in patients who a sympathectomy or after load reduction is contraindicated, an ESP may provide analgesia without the epidural-associated side effects such as systemic vasodilation.

Case Report

A 30-year-old, 90 kg, gravida seven para one woman was admitted to the labor and delivery for induction of labor at 37 + 1 weeks gestational age for induction of labor with dichorionic, diamniotic twins due to IUGR. She had a known history of Tarlov Cysts, and was being followed by neurosurgery and pain management. Her most recent MRI of her spine was 4 years prior, and demonstrated a 2.0 × 5.5 × 3.8 cm perineural cyst which was located between L5-S1 interspace going to the S2 segment, consistent with a Tarlov cyst. At that time she was advised by her neurosurgeon to not undergo neuraxial anesthesia. She had chronic low back pain, thought to be related to her Tarlov cyst, though surgical intervention was not indicated. On presentation to the labor and delivery floor, her chronic pain was managed with sublingual buprenorphine, 2 mg twice daily.

Upon admission she was evaluated by the obstetric anesthesia team. The patient requested her primary labor analgesia be provided with a remifentanyl PCA. She was offered erector spinae plane catheters be placed as well, which she was willing to have placed, but requested a delay until later in the induction. The patient eventually asked for the catheters to be placed, but after discussion with the obstetric team, a decision was made to proceed with vaginal delivery due to the immanency of the birth. She required supplemental systemic medication in the form of propofol and ketamine due to significant pain, and difficult manual extraction of both placentas. She developed uterine atony following extraction and required placement of an intrauterine balloon for tamponade of postpartum hemorrhage. The patient had ongoing low back pain and visceral pain relating to the peripartum manipulation of the uterus, and again re-

quested placement of an erector spinae plane block.

At this time, she was placed in a sitting position and a high frequency linear ultrasound transducer (Sonosite M-Turbo, Sonosite Inc, Bothell, Washington, USA) was used to identify the T10 spinous process. The transverse process and erector spinae muscle was identified on each side. On each side, a 20 g Touhy needle was placed in a cephalad to caudad direction until needle contacted the transverse process. 10 mL of normal saline was injected into the plane for hydro dissection, followed by 20 mL of 0.2% ropivacaine with 45 mcg clonidine and 4 mg dexamethasone.

Within 20 minutes of injection the patient reported significant improvement in her pain. This pain relief lasted for 12 hours following the injection, with an appreciable return of her pain promptly thereafter.

Discussion

Epidural anesthesia is the primary means of labor analgesia in the United States, and is generally well tolerated with few contraindications. There are few reasonable alternatives for the laboring patient due to the nature of the pain and the potential harm to the fetus. Patients with preexisting pain and chronic opioid use have difficulty with pain control during this period as well, and neuraxial techniques have historically been very tolerated by this population. Outside of neuraxial anesthesia, paracervical block, pudendal blocks, lumbar sympathetic block, and TAP blocks have been the other regional techniques used in the peripartum period [13].

This represents a novel use of an ESP block in the peripartum period. While this patient likely would have had maximal benefit from placement of ESP catheters prior to delivery, she still benefitted markedly from single shot injections due to ongoing pain following her traumatic delivery. This patient had the unfortunate confluence of multiple issues, specifically her Tarlov cysts and the relative contraindication for neuraxial anesthesia, her chronic opioid use with buprenorphine, and her twin delivery. These ultimately made her peripartum pain control challenging. Prior reports have noted the relative ease of placement of the ESP block, as well as the theoretical safety when compared with an epidural or paravertebral block [7-10].

Placement of ESP catheters may allow for continuous labor analgesia, similar to labor epidurals placed currently. Potential benefits when compared with epidurals include placement in patients with anatomic abnormalities such as this patient, or with severe scoliosis, similarly, there is a potential in decreased sympathetic blockade when compared with epidural or spinal anesthesia. Total local anesthetic dose should be similar to labor epidurals when low concentration and high volume infusions are used. Data currently does not exist on the systemic absorption

of local anesthetics in the ESP, but it appears to be an avascular plane. Given this, absorption is likely similar to Transversus Abdominis Plane (TAP) blocks and dosing may be comparable. Further investigations into the use of ESP blocks in the peripartum period should be pursued to better understand the capabilities and limitations of this technique.

Conflicts of Interest

The authors declare no conflicts of interest.

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