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## Correspondence

### Epidural blood patch for a post-dural puncture headache in a COVID-19 positive patient following labor epidural analgesia



The COVID-19 pandemic has created unprecedented risks and challenges for anesthesiologists worldwide. Optimal anesthetic management of these patients requires careful evaluation of risks versus benefits, despite uncertainty around the long-term consequences of COVID-19. There is little published experience of administering an epidural blood patch (EBP) in COVID-19 positive patients.<sup>1,2</sup> It is unclear if an EBP could increase the risk of viral spread into the cerebrospinal fluid. We report our experience of providing an EBP to a COVID-19 positive patient

A 24-year-old woman who was COVID-19 positive but asymptomatic, presented for induction of labor. Her body mass index was 41.6 kg/m<sup>2</sup> and her pregnancy was complicated by preeclampsia. After admission, the patient was started on magnesium sulfate for seizure prophylaxis. At the woman's request for labor analgesia, epidural placement was attempted with a 17-gauge Tuohy needle, first at the L3-4 interspace, then successfully at the L2-3 interspace. Analgesia was achieved with a bupivacaine 0.1% and fentanyl 2 µg/mL infusion at a rate of 12 mL/h and a patient-controlled bolus of 4 mL with a 15 min lockout interval. On the first postpartum day the patient complained of an 8/10 positional headache that became worse when sitting up and improved when lying flat. A diagnosis of post-dural puncture headache (PDPH) was made, and bed rest and good hydration were encouraged. She also received butalbital, caffeine, and acetaminophen, which provided partial relief. She declined an EBP and was discharged from the hospital.

Three days later, the patient was re-admitted because of a worsening headache. Repeat reverse transcriptase polymerase chain reaction test remained positive for SARS-CoV-2 infection. At this time, the patient requested an EBP. After obtaining informed consent, two providers donned in personal protective equipment performed an EBP using 16 mL of blood. Two hours later she reported significant relief of her headache and was discharged home.

The patient was followed up for 12 weeks via phone consultation. She reported lower back pain, which resolved within a few days, but no recurrence of her headache. Three days after EBP, she developed intermittent fever up to 40 °C that resolved within 4–5 days of onset. She denied symptoms that may have indicated the spread of infection to the central nervous system, such as symptoms typical of viral meningitis or encephalitis, or loss of gustatory or olfactory senses.

Dural puncture occurs in 1–1.5% of labor epidurals and >50% of these patients present with PDPH.<sup>3</sup> Conservative management is recommended prior to invasive procedures.<sup>4</sup> For COVID-19 patients, if conservative management fails, clinicians need to weigh the risk of introducing possibly viremic blood into the epidural space against

the benefit of alleviating a severe headache in a clinically well patient.<sup>5</sup>

COVID-19 positive patients may present with non-specific neurologic signs, including fatigue, anorexia, dyspnea, and malaise. Neurological features, including headache and dizziness, have been reported in up to 12% of patients.<sup>6</sup> Experience with EBP in other viral illnesses can provide guidance. A retrospective study reviewed six cases of patients with human immune deficiency virus-1 who received autologous EBP and did not develop associated morbidity.<sup>7</sup>

Our limited knowledge of COVID-19 and the possible neurological complications following an EBP may raise concerns regarding the safety of EBP in COVID-19 positive patients.<sup>8</sup> Norris et al. described no complications in a COVID-19 positive patient who was followed up for two weeks following an EBP.<sup>1</sup> Apart from the fever that lasted a few days, our patient did not develop any neurological complications during the 12-week follow-up period.

We recommend that clinicians weigh the risks versus the benefits prior to proceeding with an EBP in this situation. Due to the paucity of literature, we encourage further reporting of case studies of EBPs in COVID-19 positive patients.

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