

## Lessons Learned From First COVID-19 Cases in the United States

### To the Editor

There is a real paucity of data surrounding best anesthesia management of pregnant women tested positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; Coronavirus Disease-2019 [COVID-19]). The simultaneous surge of cases compounded by a critical shortage of protective personnel equipment (PPE), including N95 masks and high-efficiency particulate air (HEPA) filters to avoid contaminating anesthesia machines, has added to the challenge that anesthesiologists are facing today on labor and delivery units across the United States.

Reflecting on the review of COVID-19-positive patients reported in this issue of *Anesthesia & Analgesia*,<sup>1</sup> we noted that 43% of women were delivered before term, that 71% presented with fever, and that evidence of pneumonia by computed tomography was reported in all patients. Almost all women (13 of 14) had a cesarean delivery, all with an uncomplicated neuraxial anesthesia and no neurological complications. That neuraxial anesthesia is safe in women with COVID-19 is reassuring, given that it is always preferred to general anesthesia, and specifically to avoid viral aerosolization and wastage of dwindling medical equipment and PPE.

The reality is that all recommendations have centered on the risk stratification of patients; persons under investigation (PUI) or patients who have been tested and known to be COVID-19 positive should be cared for with appropriate PPE. Current recommendations include airborne protection for all aerosolizing procedures such as endotracheal intubation during general anesthesia.<sup>2,3</sup> However, universal testing has not been available in most institutions in the United States, and women may be asymptomatic when admitted in the labor and delivery unit in spontaneous labor. Further, the signs and symptoms of labor, including shortness of breath, fever in labor, diarrhea, myalgias, and chest tightness, may overlap with symptoms of COVID-19 and obscure the diagnosis.

An asymptomatic parturient who presents as COVID-19 positive later in the labor course has not been described in the case series reported so far, which has prompted us to share our experience. A healthy, asymptomatic multiparous woman was admitted for induction of labor at 37 weeks of gestation for gestation diabetes, and neuraxial analgesia was provided uneventfully. Hours later, an intrapartum cesarean delivery under epidural anesthesia was completed for prolonged second stage of labor and a diagnosis of chorioamnionitis with maternal fever. After delivery of the baby, a postpartum hemorrhage and

atony treated with massive transfusion and uterotonics required conversion to general anesthesia; endotracheal intubation precipitated immediate and prolonged bronchospasm. Though bronchospasm could be attributed to carboprost tromethamine (Hemabate; Pharmacia & Upjohn Co, Division of Pfizer Inc, New York, NY), the degree of respiratory decompensation and the fever in labor prompted a nasal swab for COVID-19 testing, which came back positive 4 hours later.

As per current recommendations, for this patient who was neither tested nor symptomatic for COVID-19, the anesthesia team did not use any PPE (besides surgical masks and gloves) nor was a HEPA filter placed between the endotracheal tube and the anesthesia machine. In this scenario, had it been suspected that the patient was COVID-19 positive, all providers would have been wearing airborne protection (gown, gloves, N95 with face shield or powered air-purifying respirators [PAPRs]) and a filter would have been placed.

Our case emphasizes that in labor and delivery units managing parturients from communities with a high prevalence of COVID-19 infection, in the absence of universal testing before cesarean delivery, all patients, even those initially asymptomatic on admission, should be treated as PUI when inducing general anesthesia.

We hope this case will raise awareness to use appropriate measures to avoid personnel exposure and equipment contamination, and that in the absence of universal testing, universal precautions are required.

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### REFERENCES

1. Bauer ME, Chiware R, Pancaro C. Neuraxial procedures in COVID-19 positive parturients: a review of current reports. *Anesth Analg*. 2020 [Epub ahead of print].
2. Anesthesia Patient Safety Foundation. Novel Coronavirus (COVID-19) Anesthesia Resource Center. Available at: <https://www.apsf.org/novel-coronavirus-covid-19-resource-center/>. Accessed April 6, 2020.
3. Podovei M, Bernstein K, George R, et al. Society for Obstetric Anesthesia and Perinatology (SOAP) Interim Considerations for Obstetric Anesthesia Care Related to COVID-19. Available at: <https://soap.org/education/provider-education/expert-summaries/interim-considerations-for-obstetric-anesthesia-care-related-to-covid19/>. Accessed April 6, 2020.

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