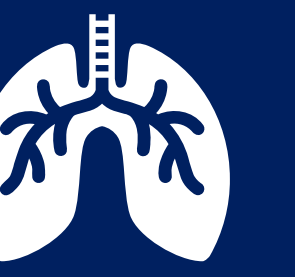


# Successful Delivery Post COVID-ECMO: Beating the Odds



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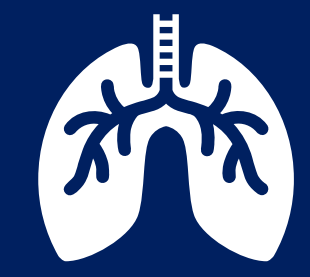
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## Introduction

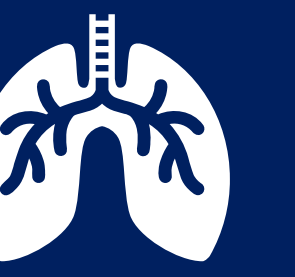
- Anesthetic management of patients who have recovered from COVID-19 is becoming a mainstay in elective surgery and the peripartum environment alike. These 'recovered' patients may pose significant anesthetic challenges due to multi-organ sequelae and post-COVID syndrome.
- Current clinical evidence suggests parturients who have had COVID-19 associated pneumonia have an increased risk of C-section, PROM, preeclampsia and preterm labor<sup>1</sup>.
- These patients require careful preoperative evaluation of sequelae and residual symptoms as well other co-morbidities

## Case

- This is a 35-year-old Hispanic G2P0 female at 34+2 weeks gestation with ankylosing spondylitis presenting for elective C-section in September 2022. Her pregnancy was complicated by gestational diabetes, pre-eclampsia, fetal growth restriction and AEDF on dopplers.
- She had COVID-19 ARDS only eleven months prior, requiring VV ECMO for 6 days, mechanical ventilation, tracheostomy, and renal failure requiring hemodialysis.
- On review, no significant ongoing cardiorespiratory sequelae were identified and she had not required any further dialysis for over 6 months. Her ankylosing spondylitis was stable, with no biological treatment for several years. She had normal vital signs and labs significant for positive antibody screen.
- She had a C-section with a combined spinal epidural and available crossmatched blood.



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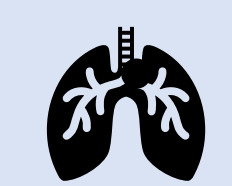


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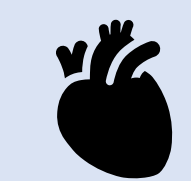
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## Discussion

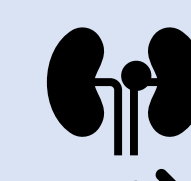
This case demonstrates some of the perioperative concerns in managing a post COVID-recovered obstetric patient, who had a severe infection with multi-organ involvement just 11 months prior to delivery. For any patient who has had a COVID infection, following the ASA Joint Statement<sup>2</sup>, elective surgery should be delayed for 7 weeks in an asymptomatic unvaccinated patient. There should be further delay if patient remains symptomatic. If surgery is deemed necessary earlier, there should be shared decision-making with the patient and surgeon, discussing risks. For any patient who has had COVID, especially if it was severe or if there are residual symptoms<sup>3</sup>, a more thorough preoperative evaluation, scheduled in advance of surgery should be considered. All organ systems should be reviewed.



**Pulmonary :** Potentially difficult intubation, especially following prolonged ICU intubation and/or tracheostomy placement. In this patient, ankylosing spondylitis had potential to make intubation more difficult with neck involvement. COVID can also cause pulmonary fibrosis and reduced FRC, further reducing pulmonary reserve in the pregnant patient.



**Cardiovascular:** More pronounced supine hypotension syndrome, hypotension with neuraxial placement, COVID sequelae including cardiomyopathies, strokes and arrhythmias<sup>4</sup>. COVID-19 increases thrombosis risk, may require interruption of ongoing anticoagulation use. Difficult venous access due to thrombosis/scarring.



**Renal:** Approximately 35% of the patients recovered from COVID-19 may have a decreased GFR for up to 6 months.



**Heme:** Positive antibody screens in the setting of transfusion history.



**Psych/Neuro:** PTSD and anxiety related to recent hospitalization, procedures, and ICU stay.

Management strategies for the post-COVID OB patient include careful recognition of multi-organ sequelae, preoperative optimization and avoidance of GA where possible. This along with careful pre-oxygenation, lung protective ventilation, readily available difficult airway equipment and ultrasound, goal-directed fluid therapy and early communication with the Blood Bank are important strategies to avoid complications and achieve favorable outcomes in pregnant patient who is post-COVID infection.

## References

1. Bajwa, Sukhminder J. S. Anesthesia management in a post Covid-19 obstetric patient-What we need to know. Journal of Anaesthesiology Clinical Pharmacology 38(Suppl1):p S13-S21
2. <https://www.asahq.org/about-asa/newsroom/news-releases/2022/02/asa-and-apsf-joint-statement-on-elective-surgery-procedures-and-anesthesia-for-patients-after-covid-19-infection>
3. Carfi A, Bernabei R, Landi F, for the Gemelli Against COVID-19 Post-Acute Care Study Group. Persistent Symptoms in Patients After Acute COVID-19. JAMA. 2020;324(6):603–605.
4. Puntmann VO, Carerj ML, Wieters I, et al. Outcomes of Cardiovascular Magnetic Resonance Imaging in Patients Recently Recovered From Coronavirus Disease 2019. JAMA Cardiol. 2020;5(11):1265-1273.