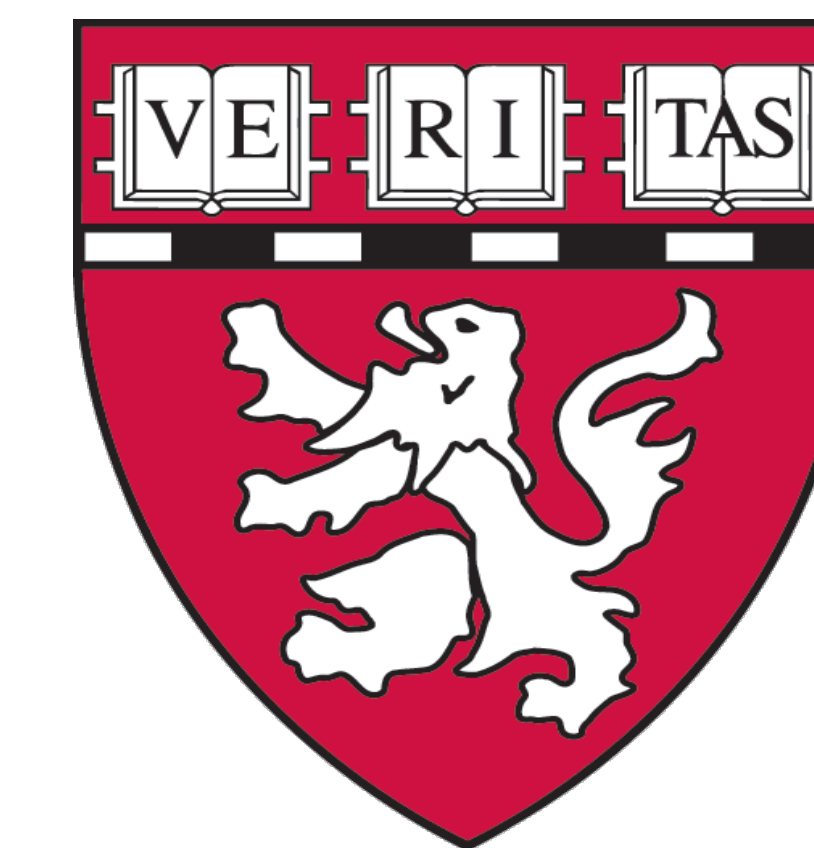




Severe Fetal Brain Damage as a Complication of Acute Maternal Hypoxemia in Covid-19

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Introduction

- Maternal respiratory failure and hypoxemia can lead to inadequate oxygen supply to the placenta and cause fetal distress.¹
- We report a case of Covid-19 acute respiratory distress (ARDS) in pregnancy with associated fetal brain damage.

Patient History

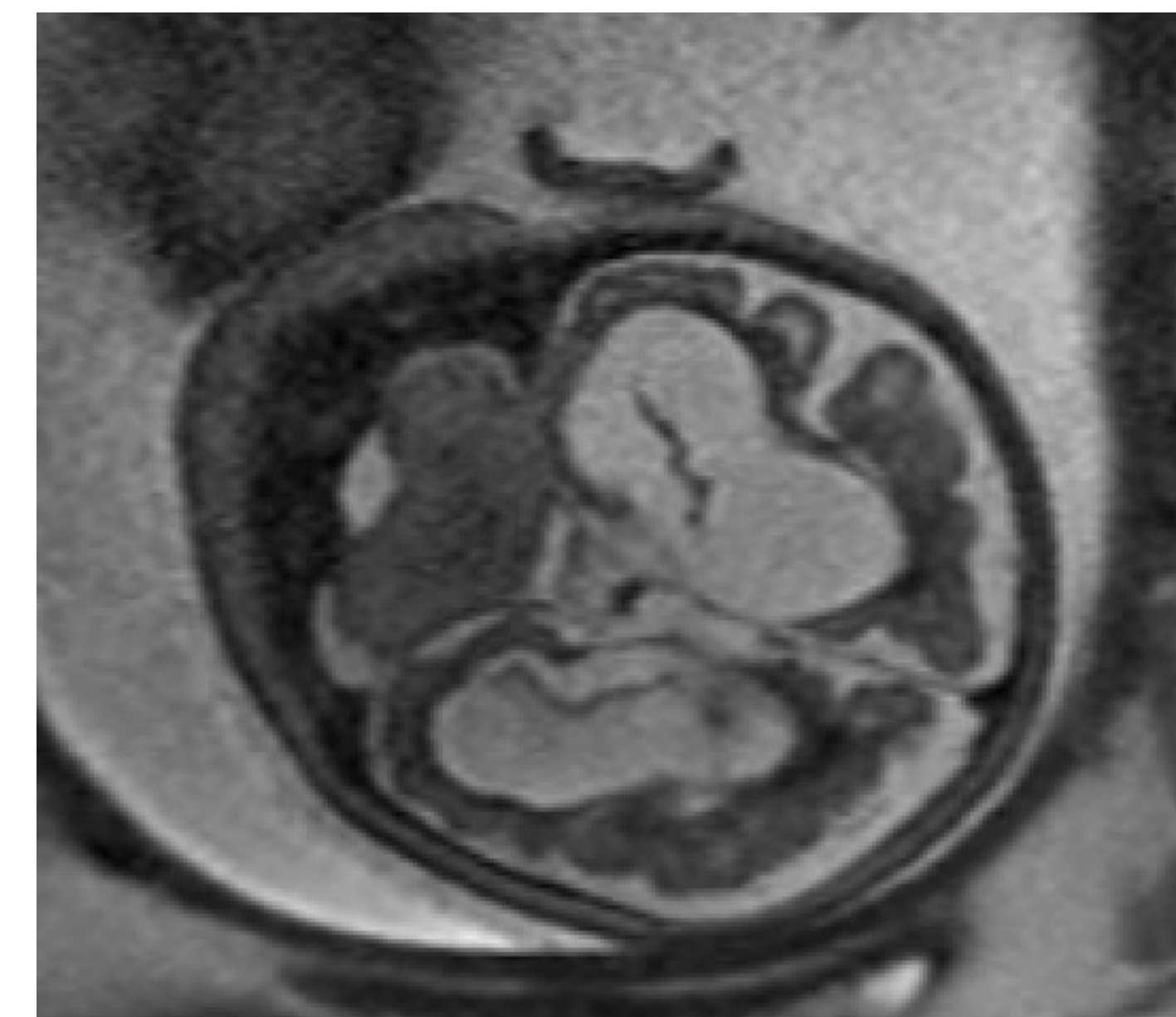
- 41yoF G11P7 BMI 44 presented to a local hospital with Covid-19 symptoms.
- B-hCG was positive and fetal ultrasound showed a gestational age of 27w1d and fetal ascites.
- PMH: opioid use disorder on methadone, chronic untreated hepatitis C, anxiety, depression.



Case Presentation

Maternal Course

- Day 1: SpO2 83%, admitted to ICU for HFNC.
- Day 4: Intubated, transferred to MGH for ECMO consideration.
 - pH 7.21, PaCO2 55, PaO2 66 on VCV with Vt 365, RR 36, Pplat 31, PEEP 14, FiO2 100%.
 - Prone position, paralytic infusion.
- Day 5: Uncomplicated VV-ECMO cannulation via internal jugular and femoral veins.
 - Multidisciplinary team decision.
 - Improved blood gas to pH 7.41, PaCO2 32, PaO2 95.
 - No delivery: limited benefit given cardiac stability and risks of surgical stress and fetal prematurity.
- Course complications:
 - 14 days on ECMO, 60 days in hospital.
 - Tracheostomy placement, renal failure requiring RRT, pulmonary hemorrhage, pulmonary emboli, drug-induced neutropenia requiring GCSF, GI bleed, morbilliform drug eruption, drug-induced liver injury.



Fetal Course

- Complete fetal ultrasound with findings consistent with intracranial hemorrhage.
- Fetal MRI: severe brain injury from hypoxic ischemic injury and hemorrhagic infarction.
- Family counseled, decided against neonatal resuscitation at delivery.
- Cesarean delivery with general anesthesia at 36w1d resulting in neonatal palliative care.

Discussion

- Our case demonstrates the importance of sufficient oxygenation (SpO2>95%)² in pregnant women with Covid-19.
- The early finding of fetal ascites in our case suggests that fetal injury occurred prior to ECMO initiation in the setting of fetal acidosis and anemia.
- Earlier ECMO initiation may have altered the course of fetal injury and should be considered as an early intervention in pregnant women with refractory hypoxemia.
- Maternal outcomes following ECMO for Covid-19 are favorable compared to the general population with survival rates nearing 80% and further support ECMO consideration for pregnant patients.³

References

1. Dang et al. J Obst Gyn Res. 2020.
2. SMFM Task Force. 2020.
3. O'Neil et al. Am J Resp Crit Care. 2022.